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What Investment Managers Are Saying About Performance-Based Fees

Directory of Master and Directed Trust Services

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Features

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Cover: **Charles W. Gregor examines the use of performance-based fees in his article on page 20. Artwork by Brian Buxton.**

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What are investment managers saying about performance-based fees?

In recent months, the topic of incentive-based fees for professional investment advisors has appeared increasingly in financial publications. The Securities and Exchange Commission's (SEC) approval of incentive-based fees in November 1985 has brought about a flood of comments and inquiries from sponsors and money managers alike. The purpose of this article is to share some opinions and offer some guidelines.

Survey highlights

In response to the SEC's change in attitude toward performance incentive-based fees in late 1985, we thought it would be informative to sample the opinions of the investment advisors participating in our Graphical Ranking of Investment Descriptors (GRID) Universe. A brief questionnaire was distributed; the investment advisors were asked their attitude toward incentive-based fees, whether they had been approached to consider the arrangement, and if they had any clients on an incentive-fee basis. The managers were then given ample space to expound on their attitude toward incentive-based fees.

Of the 478 investment advisors polled, 160 managers, or 33 percent, replied to the survey. The organizational structure of the firms responding was representative of our broader universe. Seventy-one percent were independent advisors, while bank-related and insurance company-related managers were evenly represented. Fifty percent of the respondees were managers with assets less than $1.0 billion. Managers with assets ranging from $1.0 to $5.0 billion accounted for 29 percent, while the larger organizations totaled 21 percent.

Based on the replies, we found no majority opinion; however, a larger percentage of managers favored performance incentive-based fees rather than opposed them. Specifically, 47 percent favored incentive-based fees, while 18 percent were opposed. An unexpectedly large group, 35 percent, was uncertain or was not prepared to render an opinion until the industry had a chance to digest the topic.

As far as actual implementation is concerned, 45 percent of those polled have been approached to consider an incentive-based fee arrangment; 15 percent of those surveyed have an incentive fee arrangement; and 20 percent are currently negotiating an incentive fee with clients.

Plan type appears to be a factor in the use of incentive-based fees. For accounts using an incentive fee, the majority are pension plans. This group is followed by endowment/foundation and profit-sharing funds.

These responses can be broken down by the type of investment advisor surveyed: independent, bank-related or insurance company-related advisor.

by **CHARLES W. GREGOR**
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Independent Advisors. Sixty-four percent of the independents polled had assets under management of less than $1.0 billion. Of that number, 48 percent were in favor of incentive fees, while 22 percent were opposed. Likewise, 48 percent of the mid-sized independents were in favor, while only 18 percent were opposed. The larger-sized (greater than $5.0 billion) independent advisors held no surprises, with 44 percent of those returning the survey in favor of incentive-based fees.

Bank-Related Advisors. Sixty-nine percent of the bank-related respondents had assets over $5.0 billion. Of that number, 36 percent were in favor of incentive fees, and only 18 percent were opposed. The mid-sized bank managers were evenly divided among the three choices. Small-sized bank advisors tended to be uncertain about the subject, possibly waiting for a lead from their larger counterparts.

Insurance Company-Related Advisors. Fifty percent of the insurance company-related respondents had assets over $5.0 billion. Of that number, one-third were in favor of incentive fees, while only 11 percent were opposed. Of the mid-size insurance company-related respondents, the majority of managers were in favor of the concept. None of the respondents was opposed to the idea. This response would seem to be a quirk in the survey and not representative of the attitude of the insurance company universe.

Respondents were invited to comment on these fee arrangements. As would be expected from the results of the survey, opinions

do vary. Some of the advisors polled expounded further on their attitude. As one advisor stated, "...[We] believe that, where properly structured, incentive-based fees are an attractive compensation arrangement for both sponsor and investment advisor." Another felt that "Incentive fees are appropriate when used to encourage managers to take appropriate risk levels and prevent the normal slide toward indexation." However, the opposing view was that "...fee penalties may have the perverse effect of increasing the trend toward 'closet' indexations..." One advisor declared, "In theory, incentive fees should help managers with outstanding performance records, by forcing more attention on results." As noted by another, "We see the industry strongly moving in this direction, especially with sponsors who want specialty managers to assume risk levels greater than a market average."

Those advisors against incentive-based fees were just as vocal as those in favor of them. One advisor claimed that "...from a business standpoint, incentive fees could be attractive; however, from a fiduciary standpoint, they could cause [the advisor] some concern." Others stated, "Incentive fees change the focus from achieving consistent long-term investment goals per client to making the most bucks before the end of the quarter." An opinion voiced by several advisors was that "...[no one] is going to work harder as a result of performance fees. If a client is not satisfied with an advisor's work, [the client] should fire him ... Conversely, good results carry their own incentive..." And finally, some advisors believe that "all clients should be on the same footing insofar as fees are concerned."

General guidelines

Incentive-based fees, much like investment objectives, must be examined on a case-by-case basis. There is no blanket statement that will cover all clients. An advisor that takes substantially more risk than the market may be a candidate for incentive-based fees. Also, one may argue that until an advisor has proven to "add value" over an unmanaged index, the client should not pay a fee greater than those charged by index-fund advisors.

For an incentive-based fee arrangement to work, four matters must be critically addressed. First, the fee must be fair and equitable to both the advisor and the client. The base fee should be sufficient to cover costs of doing business plus an incremental profit. The incentive portion, with specified caps, should be structured to reward stellar performance and to censure underperformance. The arrangement has to have "give and take" on both sides. Second, the measurement time pe-

Five Examples of Incentive Fees

Example 1
Incentive fees above a base fee are prorated as performance approaches target.

Minimum fee = 0.2%
If return > bogey + 2.0%, fee = 1.0%
Maximum fee = 1.5%, if return > bogey + 3.5%

If the bogey is the S&P 500 stock index, which returns 14.5%, an investment advisor must return at least 16.5% to earn a 1.0% fee. If the advisor's return is 12.5%, only a 0.5% (prorata from minimum) fee would be payable. On the other hand, if the return was greater than 18.0%, a 1.5% fee would be owed the manager.

Example 2
The advisor receives 20% share in performance above or below an appropriate index, i.e.:

Index	Advisor	Increment to Fee
10%	12%	+40 bp
10	8	−40 bp

Downside limit equals a low flat fee.

Example 3

Relative Performance to Bogey	Fee Adjustment
Bogey ± 4%	±20%
Bogey ± 2%	±10%

Compared on a three-year trailing basis.

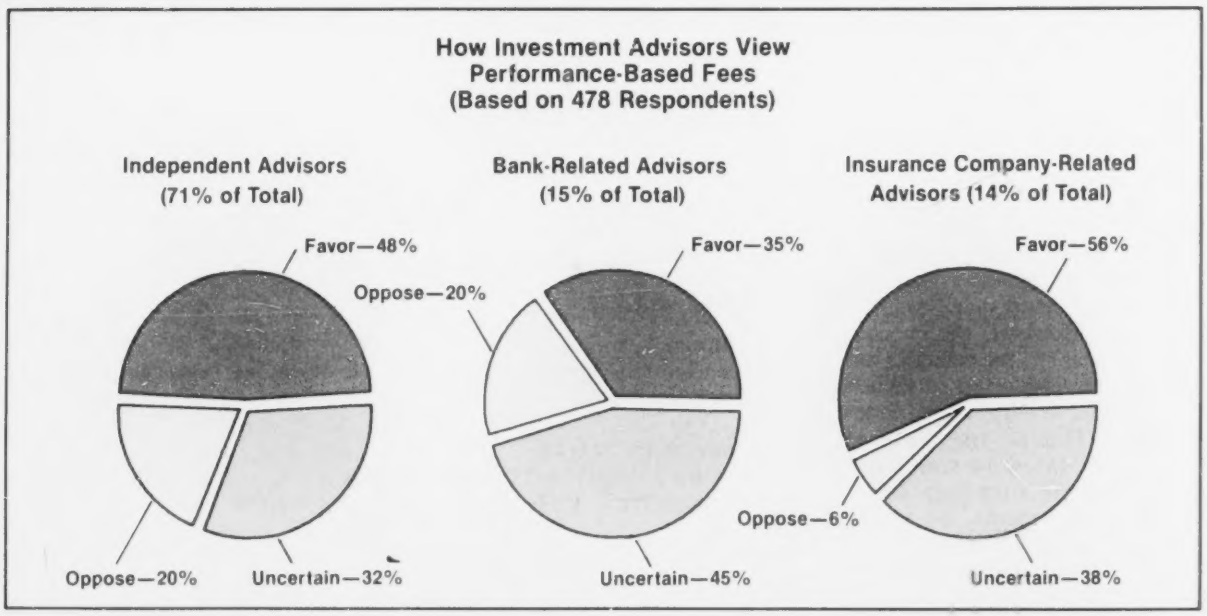
Example 4
Minimum fee = 0.2%

		Fee
Return > Bogey	+ 100 bp	= 0.4%
	+ 200 bp	= 0.6%
	+ 300 bp	= 0.8%
	+ 400 bp	= 1.0%

Maximum fee = 1.0%

If an advisor's return equals the bogey—in this case, the S&P 500—the fee would be the low "index-like fee" of 0.2% of assets. If, however, the advisor betters the bogey by 400 bp or 4%, the maximum fee of 1.0% is charged.

Example 5
A fulcrum fee ranging from 0.1% to 0.9% with a fee of 0.5% for S&P 500 plus 1% performance over a three-year trailing period.



riod must be long enough to capture a "market cycle" of the advisor's management style, but not so long that the measurement becomes meaningless. Third, the advisor must be closely monitored to assure that the returns are obtained within predetermined risk parameters and that the advisor doesn't vary from his management style to pick up added return.

Finally, the universe of stocks that comprise the bogey index must be carefully constructed. For some advisors, the S&P 500 Index may be perfect; while for others, a much broader or narrower index must be constructed. In other words, an intelligent index construction is paramount to a fair incentive system.

The accompanying highlight provides five examples of incentive-based fee structures that are currently being used or negotiated by the polled advisors. The symbol "bp" stands for basis point or 0.01 percent. These examples are not meant to be our recommendations for an incentive-based fee structure, but only examples supplied for educational purposes.

Conclusion

The results of the incentive-based fee poll are surprising. It is unexpected that such a large number, 47 percent, would be in favor of the fee arrangement. Even more unexpected, only 18 percent of those managers responding are against the system. It is not surprising that 65 percent do not have a client on an incentive-fee basis. This percentage will probably decrease as more clients become aware of its use. □

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Is a South Africa-free portfolio a good investment?

by **MILTON J. EZRATI**
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South African divestiture has received a lot of discussion in the general press lately, but in all this debate surprisingly little attention has focused on the investment aspects of the question. This essay aims to remedy that deficiency.

The discussion here ignores those moral, political, military and administrative questions that have taken up the bulk of the discussion to date and concentrates instead on the risk and performance characteristics of portfolios before and after divestiture; in so doing, it comes to conclusions that fly in the face of received wisdom. Most notably, the analysis shows that even though the South Africa exclusion radically changes the character of the available universe of stocks, it need not necessarily skew relative investment performance. Of course, blind divestiture, without efforts to rebalance a portfolio's industry and investment characteristics, can profoundly affect performance. But a rigorous attempt to rediversify after divestiture can avoid much of the investment bias otherwise implicit in the action. Indeed, it is possible, by carefully diversifying across an enlarged universe of stocks, actually to create a South Africa-free portfolio that mirrors the character and performance of the S&P 500, even though half the capitalization of that index is in companies with South African interests.

This finding, of course, has sev-

Table 1 Investment Characteristics of the S&P 500 Index with and without South Africa (June 30, 1986)

	S&P 500	Purged S&P 500[1]	Relative
Market Capitalization	$22.64	$22.22	98.14%
Liquidity	72.77%	72.22%	99.24
Growth	9.98%	10.39%	104.11
Earnings Variation	0.4859	0.5269	108.44
Foreign Income	16.60%	10.63%	64.04
Labor Intensity	24.28%	19.93%	82.08
Beta	1.0000	1.0331	103.31
Price/Earnings Ratio	13.97	13.76	98.50
Price-to-Book Ratio	1.76	1.65	93.75
Financial Leverage	21.22%	23.74%	111.88
Yield	3.85%	3.92%	101.82

[1]Excluding companies doing business in South Africa.

Market Capitalization:	Total market capitalization of the average company in the sample. Expressed in billions of dollars.
Liquidity:	Quarterly turnover of shares in the average company in the sample. Expressed as a percent of total shares outstanding.
Growth:	Growth in total assets of the average company in the sample. Expressed as an annual percent rate.
Earnings Variation:	Variance of earnings around its mean of the average company in the sample.
Foreign Income:	Operating income from foreign sources for the average company in the sample. Expressed as a percent of total income from all sources.
Labor Intensity:	Labor's share of total revenues for the average firm in the sample. Expressed as a percent.
Beta:	Historical beta.
P/E Ratio:	Based on current price and trailing 12-month earnings.
Price/Book Ratio:	Based on current price and last stated book value.
Financial Leverage:	Debt-to-assets ratio. Expressed as a percent.
Yield:	Indicated annual dividend to price. Expressed as a percent.

"Contrary to popular belief, the cost of divestiture is not necessarily in skewed returns. Rather, the cost is in the demands it places on the portfolio manager . . ."

eral important implications for all investment managers. First, it means that it is possible to run a South Africa-free fund that is otherwise indexed to the S&P 500. Second, it means that investors can reasonably ask for divestiture from any manager and yet still insist on measuring that manager's performance against the 500 instead of some adjusted universe, as many do. Most generally, however, this finding means that contrary to popular belief, the cost of divestiture is not necessarily in skewed returns. Rather, the cost is in the demands it places on the portfolio manager to make more broad, more careful, more rigorous applications of the principles of diversification than are usually required under less constrained circumstances.

A South Africa-free S&P

These conclusions are surprising probably because the bulk of the investment discussion of divestiture (as little as there has been) has centered on simple assertions about likely returns or, at best, crude performance comparisons. Some of these comparisons conclude that divestiture helps relative performance; others say it hurts it. Almost all are inadequate because they were conducted over limited time periods and take little or no account of anything else that affected stocks at the time. For example, a simple divestiture will tend to create a small-stock bias in the

Table 2 **Industry Characteristics of the S&P 500**

	S&P 500	Purged S&P 500	Relative
Metals & Mining	2.04%	2.73%	133.8%
Aluminum	0.47	0.88	187.2
Iron & Steel	0.34	0.58	170.6
Precious Metals	0.17	0.24	141.2
Coal & Uranium	0.53	0.56	105.7
Miscellaneous	0.53	0.47	88.7
Oil	12.29%	12.18%	99.1%
International	4.35	1.56	35.9
Domestic Reserves	3.93	4.79	121.9
Foreign Reserves	1.57	2.11	134.4
Refining & Distribution	1.07	1.64	153.3
Oil Service	1.38	2.08	150.7
Agriculture & Forest Products	6.07%	7.08%	116.6%
Forest Products	0.35	0.61	174.3
Paper	2.16	2.75	127.3
Agriculture, Food	3.56	3.72	104.5
Food, Tobacco & Packaged Goods	5.26%	5.50%	104.6%
Beverages	0.86	0.31	36.1
Liquor	0.90	1.10	122.2
Tobacco	1.02	1.00	98.0
Soaps	1.11	1.37	123.4
Cosmetics	0.59	0.28	47.5
Retail Food	0.78	1.44	184.6
Other Consumer	11.34%	12.04%	106.2%
Nonfood Retail	4.72	8.50	180.0
Apparel & Textiles	0.60	0.74	123.3
Photographic & Optical	1.16	0.17	14.7
Motor Vehicles	3.36	0.82	24.4
Non-Auto Durables	0.91	0.86	94.5
Leisure & Luxury	0.59	0.95	161.0
Drugs & Health Care	6.48%	1.80%	27.8%
Drugs	4.62	0.38	8.2
Health Care	1.86	1.42	76.3

with and without South Africa (June 30, 1986)

	S&P 500	Purged S&P 500	Relative
Publishing & Media	3.57%	3.07%	86.0%
Publishing	1.73	2.03	117.3
Media	1.84	1.04	56.5
Transport & Travel	4.20%	6.76%	161.0%
Hotels & Restaurants	1.76	2.56	145.5
Air Transport	0.74	1.05	141.9
Railroads	1.32	2.44	184.9
Trucking	0.30	0.56	186.7
Transport by Water	0.08	0.15	187.5
Intermediate Goods	8.17%	4.38%	53.6%
Chemicals	3.59	1.69	47.1
Tire & Rubber	0.26	0.07	26.9
Containers	0.20	0.09	45.0
Misc. Producers Goods	4.12	2.53	61.4
Capital Spending & Defense	16.93%	9.79%	57.8%
Business Machines	9.14	2.32	25.4
Electronics	2.74	2.47	90.2
Construction	1.17	1.70	145.3
Aerospace	3.46	2.53	73.1
Pollution Control	0.42	0.77	183.3
Utilities	13.75%	23.84%	173.4%
Electric	4.71	8.81	187.1
Gas	1.41	2.41	170.9
Telephone	7.63	12.62	165.4
Financial	7.77%	8.53%	109.8%
Banks	2.40	2.20	91.7
Thrift Institutions	0.25	0.46	184.0
Life Insurance	1.13	1.68	148.7
Other Insurance	2.27	3.08	135.7
Misc. Financial	1.72	1.11	64.5
Other	2.39%	2.32%	97.1%
Real Property	0.21	0.38	181.0
Services	1.21	1.10	90.9
Miscellaneous	0.97	0.84	86.6

resulting portfolio. Measure performance over a period when small stocks outperformed the average and it appears that divestiture helps; measure over a period when small stocks underperformed and it appears that divestiture hurts. Either way, the results are largely serendipitous and have little bearing on likely future results, unless there is a strong conviction on the future relative performance of small stocks and a confidence that nothing else will matter.

Such a casual approach to divestiture, as popular and common as it is, is no way to manage large sums of money (especially if one is a beneficiary). A more appropriate way would start by comparing a full range of investment and industry characteristics in portfolios that include companies with South African affiliations and portfolios that exclude them. Tables 1 and 2 show the results of just such a comparison between the entire S&P 500 and the 500 less the current number of 142 offending companies—an S&P 358, so to speak.

Actually, just setting the lists for divestiture can impose a significant hurdle. There are a number of sources of information on the South African operations of public companies, and the number of companies varies over time. These sources do not always agree, which can complicate things greatly. A widely used authority is The International Council for Equality of Opportu-

Table 3

Relative Performance of the S&P 500 Index with and without South Africa (December 31, 1980 through June 30, 1986)

		S&P 500 With South Africa			S&P 500 Without South Africa		
		Quarterly Return	Annual Return	Cumulative Return	Quarterly Return	Annual Return	Cumulative Return
1981	1st Qtr	1.4%		1.4%	3.9%		3.9%
	2nd Qtr	−2.3%		−1.0%	−0.8%		3.1%
	3rd Qtr	−10.3%		−11.2%	−9.7%		−6.9%
	4th Qtr	6.9%	−5.1%	−5.1%	7.6%	0.1%	0.1%
1982	1st Qtr	−7.1%		−11.8%	−8.6%		−8.4%
	2nd Qtr	−0.5%		−12.2%	−1.2%		−9.6%
	3rd Qtr	11.4%		−2.2%	11.1%		0.5%
	4th Qtr	18.1%	21.7%	15.5%	17.9%	18.3%	18.4%
1983	1st Qtr	10.0%		27.1%	11.1%		31.5%
	2nd Qtr	11.0%		41.1%	10.1%		44.8%
	3rd Qtr	−0.2%		40.8%	−1.6%		42.5%
	4th Qtr	0.3%	22.2%	41.2%	0.1%	20.4%	42.6%
1984	1st Qtr	−2.4%		37.8%	−1.9%		39.9%
	2nd Qtr	−2.6%		34.2%	−3.1%		35.5%
	3rd Qtr	9.6%		47.2%	9.9%		49.0%
	4th Qtr	1.8%	6.1%	49.7%	1.9%	6.5%	51.9%
1985	1st Qtr	9.3%		63.6%	9.5%		66.2%
	2nd Qtr	7.3%		75.5%	8.7%		80.7%
	3rd Qtr	−4.2%		68.1%	−5.8%		70.2%
	4th Qtr	17.1%	31.4%	96.8%	17.2%	31.4%	99.5%
1986	1st Qtr	14.0%		124.3%	13.2%		125.7%
	2nd Qtr	5.8%	20.5%*	137.3%	5.9%	19.8%*	139.1%

*Six month return.

nity Principles, Inc., whose lists form the basis of this analysis. Of course, even when the information source is set, the confusion remains, since "South Africa-free" can have any number of definitions. Some would exclude only those companies which do business in South Africa and have failed to sign the Sullivan Principles, drawn up some years ago by the Rev. Dr. Leon H. Sullivan as a guide for American firms operating under apartheid. Some would ignore the Sullivan Principles but would exclude only those firms with a "significant" presence in South Africa. So, for example, General Motors, which operates an assembly plant, would be excluded even though it has signed the Sullivan Principles, but CBS could be included, even though it has failed to sign the Sullivan Principles, because it only maintains a representative office in South Africa. Then there are some who would exclude any company that has any dealings at all in South Africa. This last, most severe approach cuts out half the capitalization of the S&P 500. This approach forms the basis of this analysis, not because it is most appropriate, but because it is most severe and therefore the best way to test the investment implications of the divestiture decision.

A careful examination of the accompanying tables shows clearly that this exclusion does in fact change the character of the S&P drastically. A look at the investment characteristics in Table 1 shows the small-stock bias that has already been mentioned. But these relative measures show many more significant differences. The South Africa-free subset clearly shows a much greater financial leverage than the whole S&P 500 as well as a larger proportion of companies with earnings that are faster growing and much more variable than in the full index. All this, of course, fits with the general small-stock bias among the South Africa-free stocks. The group that is purged of South Africa also shows a much lower labor intensity and less foreign exposure than the full 500. The relatively low use of labor fits with the high financial leverage because it implies an enlarged role for financial capital and capital equipment in production and the conduct of business. Since the capital is effectively overhead, this condition also implies a high sensitivity of earnings to the volume of production and business activity in general, which in turn suggests a greater sensitivity to economic cycles in the purged group than in the whole 500. The low foreign exposure also stands to reason, since most international concerns are likely to have at least some presence in a naturally rich country like South Africa. This, of course, suggests that the purged group is much less sensitive to currency swings—good or bad—than is the full S&P 500. Although the South Africa-free subset shows slightly lower price-to-book and price/earnings ratios than does the full index, it carries a higher beta, suggesting a heightened sensitivity to market swings, which probably reflects another link to its small-stock bias.

Table 2 compares 54 distinct industry groups (determined by correlations of stock price movements). Few industries show a pro-

Table 4 Investment Characteristics of the Enlarged Universe and the S&P 500 (June 30, 1986)

	S&P 500	Enlarged Universe South Africa-Free	Relative
Market Capitalization	$22.64	$21.77	96.16%
Liquidity	72.77%	67.82%	93.20
Growth	9.98%	10.52%	105.41
Earnings Variation	0.4859	0.5543	114.08
Foreign Income	16.60%	9.67%	58.25
Labor Intensity	24.28%	19.72%	81.22
Beta	1.0000	1.0283	102.83
Price/Earnings Ratio	13.97	13.37	95.71
Price-to-Book Ratio	1.76	1.65	93.75
Financial Leverage	21.22%	23.74%	111.88
Yield	3.85%	3.85%	100.00

portionate reduction from the South Africa exclusion, so the relative industry weights in the South Africa-free group are very different from those of the whole index. In at least 27 cases (half the industries), the differences are enormous. Thus, international oils virtually drop out of the purged group, since most companies in this group have a presence in almost every major country in the world, including South Africa. The South Africa-free group carries barely over one-third the weight in this area that is held in the whole index. Similar circumstances are true in other industries that are known for their global orientation: beverages, cosmetics, photography, motor vehicles, drugs, chemicals, rubber, containers, and business machines. Because the whole process is one of exclusion, those industries with the least to exclude are overweighted in the purged group, i.e., those with a domestic orientation: metals, oil refining and service, forest products, retail, leisure, transportation, pollution control, utilities, thrift institutions, and real estate.

Post-purge performance

Since these differences between the purged group and the entire 500 change relatively little over time, this analysis (based on June 1986 numbers) helps clarify why at different times in the past the South Africa-free group outperformed or underperformed the whole S&P 500. Table 3 shows absolute and relative performance on a quarterly, annual and cumulative basis since 1981.

Even going back before the formal performance measurement begins here, it should be clear from this analysis that in the late 1970s and early 1980s, when energy issues were leading the market, the clear lack of international oils in the South Africa-free group would have caused it to underperform the entire 500. The domestic orientation of the purged group also would have hurt its relative performance during this time, since the foreign exchange value of the dollar was falling rapidly then, and that tended to benefit multinational and trade-oriented firms relative to others. Furthermore, the late 1970s and 1980 were times of rapidly rising interest rates, which would have hurt the performance of the South Africa-free group because of its clear overweight in interest-sensitive areas such as utilities and financial stocks, especially thrifts. The comparatively high financial leverage of this purged group also suggests a drag on its relative performance during those financially strained years.

Through 1981, the South Africa-free group was showing clearly superior returns to the overall 500 index, largely because circumstances by then had completely reversed from the late 1970s. Oil stocks, particularly internationals, were suffering, giving a relative edge to this group with its clear underweighting in the area. Also by 1981, the dollar had begun its remarkable rise on foreign exchange markets, hurting multinationals in which the purged group is light. Interest rates also peaked in 1981—short rates early in the year, long rates later in the year. That change from rising to falling interest rates gave a relative boost to the highly interest-sensitive South Africa-free group, with its generally high financial leverage and its overweighting in financial stocks and utilities. Actually, this purged group might have done even better relative to the 500 during this time were it not for its heavy relative weight in capital-intensive companies and industries, such as metals (precious and otherwise), forest products, transportation and real estate. Stocks in all those economically sensitive areas suffered relative to the entire S&P during that year's recession-induced bear market. The relatively high beta of the South Africa-free group also counted against performance during this time of falling stock prices. But clearly none of these relative drawbacks overcame the other clear positives working for the purged group in the environment of 1981.

During most of 1982 and a good part of 1983, the South Africa-free group lost ground to the full 500 stock index. The high beta of the South Africa-free group should have helped relative performance during the bull market that prevailed during much of this time. The continued rise in the foreign exchange value of the dollar should also have benefited the purged group. But these were not sufficient to offset performance problems on three other fronts. First the classic cyclical, economically sensitive stocks ran their course early in this period and then began to adjust back. This acted against the economically sensitive purged group, despite the fact that the economy was in a robust recovery during much of the time. Second, by mid-1983, interest rates were on the rise again, which naturally hurt the purged group with its high financial leverage and overweightings in utilities and financials. Third, during this time investors began to realize the negative impact of disinflation on corporate earnings. This quickly lead to a reaction against small-sized companies or those with any volatility in earnings. It even caused a flight from growth stocks. With a clear bias toward all these areas, the

"Despite its high beta and general interest sensitivity, the South Africa-free group has underperformed the S&P 500 index during most of the last twelve months."

South Africa-free group suffered.

Relative performance was mixed for most of 1984, although on balance the South Africa-free group gained modestly on the full 500 index during this time. The gains became stronger during the first half of 1985. Part of this came from the high beta of the purged group, since the market was rallying during this time. Also, by late 1984 and very early in 1985, the dollar was soaring on foreign exchange markets, wreaking havoc with U.S. multinationals and other trade-oriented firms and thereby giving a relative boost to the purged group with its clearly domestic orientation. Oil stocks suffered during much of this time, too, which, of course, was a clear benefit to the energy-light South Africa-free group. Furthermore, by 1984, investors had begun their aversion to technology stocks, an area in which the purged group is underweighted. Investors during this time did continue their aversion to small stocks and to those with volatile earnings. This held back the relative performance of the South Africa-free group but clearly not sufficiently to outweigh the rest of these generally favorable influences.

During the last twelve months, stocks have appreciated dramatically, largely in response to falling interest rates. Despite its high beta and general interest sensitivity, the South Africa-free group has underperformed the S&P 500 index dur-

Table 5 Industry Characteristics of the Enlarged

	S&P 500	Enlarged Universe South Africa-Free	Relative
Metals & Mining	2.04%	2.54%	124.5%
Aluminium	0.47	0.60	127.7
Iron & Steel	0.34	0.51	150.0
Precious Metals	0.17	0.22	129.4
Coal & Uranium	0.53	0.56	105.7
Miscellaneous	0.53	0.65	122.6
Oil	12.29%	12.65%	102.9%
International	4.35	1.96	45.1
Domestic Reserves	3.93	4.70	119.6
Foreign Reserves	1.57	2.37	151.0
Refining & Distribution	1.07	1.95	182.2
Oil Service	1.38	1.67	121.0
Agriculture & Forest Products	6.07%	5.77%	95.1%
Forest Products	0.35	0.45	128.6
Paper	2.16	2.29	106.0
Agriculture, Food	3.56	3.03	85.1
Food, Tobacco & Packaged Goods	5.26%	5.44%	103.4%
Beverages	0.86	0.30	34.9
Liquor	0.90	0.91	101.1
Tobacco	1.02	1.43	140.2
Soaps	1.11	1.11	100.0
Cosmetics	0.59	0.21	35.6
Retail Food	0.78	1.48	189.7
Other Consumer	11.34%	9.83%	86.7%
Nonfood Retail	4.72	6.55	138.8
Apparel & Textiles	0.60	0.70	116.7
Photographic & Optical	1.16	0.19	16.4
Motor Vehicles	3.36	0.71	21.1
Non-Auto Durables	0.91	0.92	101.1
Leisure & Luxury	0.59	0.76	128.8
Drugs & Health Care	6.48%	2.26%	34.9%
Drugs	4.62	0.77	16.7
Health Care	1.86	1.49	80.1

Universe and the S&P 500 (June 30, 1986)

	S&P 500	Enlarged Universe South Africa-Free	Relative
Publishing & Media	3.57%	3.30%	92.4%
Publishing	1.73	2.09	120.8
Media	1.84	1.21	65.8
Transport & Travel	4.20%	6.01%	143.1%
Hotels & Restaurants	1.76	2.28	129.6
Air Transport	0.74	1.10	148.7
Railroads	1.32	1.66	125.8
Trucking	0.30	0.58	193.3
Transport by Water	0.08	0.39	487.5
Intermediate Goods	8.17%	5.01%	61.3%
Chemicals	3.59	2.14	59.6
Tire & Rubber	0.26	0.18	69.2
Containers	0.20	0.10	50.0
Misc. Producers Goods	4.12	2.59	62.9
Capital Spending & Defense	16.93%	8.19%	48.4%
Business Machines	9.14	2.10	23.0
Electronics	2.74	2.26	82.5
Construction	1.17	1.42	121.4
Aerospace	3.46	1.93	55.8
Pollution Control	0.42	0.48	114.3
Utilities	13.75%	22.36%	162.6%
Electric	4.71	10.39	220.6
Gas	1.41	2.64	187.2
Telephone	7.63	9.33	122.3
Financial	7.77%	12.97%	166.9%
Banks	2.40	5.62	234.2
Thift Institutions	0.25	0.49	196.0
Life Insurance	1.13	1.70	150.4
Other Insurance	2.27	2.99	131.7
Misc. Financial	1.72	2.17	126.2
Other	2.39%	3.40%	142.3%
Real Property	0.21	0.48	228.6
Services	1.21	2.01	166.1
Miscellaneous	0.97	0.91	93.8

ing most of this time. Part of the reason is the decline in the foreign exchange value of the dollar that began a bit over a year ago. This has given a boost to pharmaceuticals, chemicals and other areas with a global orientation. The purged group is not only light in these key industries, it also holds a clear bias toward domestic operations within most industry groups. Probably more important to the relative underperformance is the intensification during this time of investors' suspicions about small stocks and earnings growth. There was a clear penalty imposed on the stock of any company that showed volatile earnings or high financial leverage. All these characteristics are clearly evident in the South Africa-free group. The low labor intensity of this purged group, i.e., high capital intensity, also counted against its relative performance as the tax reform legislation pushed investors away from firms with large write-offs for depreciation and the investment tax credit. The South Africa-free group has only begun to outperform the 500 again during the last couple of months, primarily because of its relatively heavy weight in utilities and financial stocks.

All the relative over- and underperformance nets out about even on a cumulative basis over the entire five-and-one-half-year stretch. But that is small comfort from a portfolio whose absolute and relative performance has swung widely from

Table 6 Investment Characteristics of the Optimized South Africa-Free Index Portfolio (June 30, 1986)

	S&P 500	Optimized Index	Relative
Market Capitalization	$22.64	$22.26	98.32%
Liquidity	72.77%	67.27%	92.44
Growth	9.98%	9.84%	98.60
Earnings Variation	0.4859	0.4996	102.82
Foreign Income	16.60%	19.66%	118.43
Labor Intensity	24.28%	22.42%	92.34
Beta	1.0000	1.0000	100.00
Price/Earnings Ratio	13.97	13.97	100.00
Price-To-Book Ratio	1.76	1.65	93.75
Financial Leverage	21.22%	22.30%	105.09
Yield	3.85%	3.88%	100.80

month to month during this time. As the wild swings suggest, this even netting out speaks less to any stability in the South Africa-free group than to an accident of the particular time period of the test. And as should be quite clear from this analysis, a simply purged portfolio has sensitivities that are very different from those of the full 500, so that this South Africa-free subset has gone from as much as 200 basis points ahead of the S&P 500 in one month to as much as 150 basis points behind it in another. These swings imply risk, instability and a lack of control relative to what might be gained in equities. It is the major drawback of this casual approach to divestiture.

Gaining control

But even facing a severe South Africa-free directive, a manager does not have to accept all these biases and risks. With a careful selection of securities to rediversify the portfolio after a purge of unwanted companies, a manager can re-establish a link to the full S&P 500 and thereby effectively regain control of the portfolio relative to this important benchmark. Of course, to do this effectively, the manager must choose from a broader univese of stocks than is commonly used. Even then, such a rebalancing effort takes a greater facility with the principles and practice of diversification than is presently common in the money management community.

Although simply broadening the universe helps, as Tables 4 and 5 show, it is not enough to regain control. These tables make the same analysis as was just done for the S&P 500, except they are based on a universe of 1,400 stocks (referred to as the A1000 universe), which includes the S&P 500 and which drops down to about 1,100 issues when purged of South African-affiliated companies. Without any elaborate analysis, a simple comparison of the relative values from Table 4 with those of Table 1 shows clearly that in terms of investment characteristics, a simple purge of the S&P 500 or a simple purge of this enlarged universe leaves similar biases of about the same magnitude. Both purged universes have a high beta and carry an orientation toward domestic business, small stocks, high financial leverage, and growth with volatile earnings.

In terms of industry mix, however, the enlarged universe has definite advantages. For instance, while the purge of South African-affiliated firms from the enlarged universe still leaves a group that is underweighted in international oils relative to the whole S&P, it is not nearly as extreme as the simple purge of the S&P 500 to a 358-stock group. The same is true in drugs, media, chemicals, rubber and containers. The enlarged universe after a South Africa purge also carries industry overweightings similar to those of the 358, but neither are they as extreme. In forest products, for example, the larger South Africa-free group carries an overweighting of 129 percent of the whole S&P 500, compared with the 358's overweighting of 174 percent. Similarly in the retail area, the enlarging of the universe takes the overweighting down to 139 percent of the whole S&P 500 from 180 percent in the 358. There are some areas where the enlarging of the universe causes further distortions of the industry mix, but, by and large, the industry mix of the South Africa-free portion of the broader group more closely resembles that of the whole S&P 500. In the 27 industry groups where the 358 is vastly different from the S&P 500, the step to a larger universe hurts in only a half-dozen cases and helps in over a dozen. And when the enlarged universe moves the weights closer to the whole 500, it goes much further than when it moves them away.

Although the improved industry mix promises some heightened control of a South Africa-free portfolio relative to the S&P 500, an optimal selection of individual issues within industry groups can actually bring the investment characteristics of a portfolio close to those of the entire S&P 500. In this way, it is possible to regain a good measure of control over the South Africa-free portfolio. Indeed, it is possible in this way to create a South Africa-free index portfolio that will, in fact, track the performance of the 500 quite closely.

Index portfolio

Tables 6 and 7 analyze just such an optimal South Africa-free index portfolio. By contrast to either of the two previous analyses, this portfolio is much closer to the characteristics of the whole S&P 500 than either the South Africa-free 358 or the enlarged South Africa-free stock universe (Table 8).

Of course, there is no way to completely fill the gap left by the expulsion of all the undesirable companies. The optimized index portfolio remains underweighted in international oils, for example, but not nearly as underweighted as either the purged S&P universe or even the enlarged universe. This movement closer to the entire S&P 500 occurs in all but five of the cases where a simple purge causes a significant underweighting or overweighting.

"Except in key industries, such as oil, matching the investment characteristics is more important to replicating the index's performance than is matching the industry mix."

There are a few instances where industry over- and underweightings are actually greater in the optimized index portfolio than in the simply purged S&P. Sometimes these divergences occur in industries with close correlations to others, where shifting the pieces makes for a more 500-like whole. Thus "coal & uranium" is moved to a significant underweighting to allow for a relative rise in the weight of international oil. At other times, these divergences exist in very small industry groups such as precious metals, where seemingly significant differences mean little to the whole portfolio's relative performance. In most cases, however, these shifts away from a perfect S&P-like industry mix arise from an effort to better match the portfolio's investment characteristics to the 500.

Except in key industries, such as oil, matching the investment characteristics is more important to replicating the index's performance than is matching the industry mix. And as the first part of Table 8 shows, the attempt to match investment characteristics through the optimal selection of issues within industries, together with a judicious shifting of industry weights has largely succeeded. In all but one case (market liquidity), the investment characteristics of the optimized South Africa-free index portfolio are about equal or much closer to those of the S&P 500 than are the characteristics of either the 358 or

Table 7 Industry Characteristics of the Optimized

	S&P 500	Optimized Index	Relative
Metals & Mining	2.04%	2.02%	99.0%
Aluminum	0.47	0.80	170.2
Iron & Steel	0.34	0.37	108.8
Precious Metals	0.17	0.04	23.5
Coal & Uranium	0.53	0.46	86.8
Miscellaneous	0.53	0.35	66.0
Oil	12.29%	11.53%	93.7%
International	4.35	3.20	73.6
Domestic Reserves	3.93	4.52	115.0
Foreign Reserves	1.57	1.15	73.2
Refining & Distribution	1.07	1.34	125.2
Oil Service	1.38	1.32	95.7
Agriculture & Forest Products	6.07%	7.47%	123.1%
Forest Products	0.35	1.07	305.7
Paper	2.16	3.16	146.3
Agriculture, Food	3.56	3.24	91.0
Food, Tobacco, & Packaged Goods	5.26%	6.38%	121.3%
Beverages	0.86	0.42	48.8
Liquor	0.90	1.16	128.9
Tobacco	1.02	1.84	180.4
Soaps	1.11	1.80	162.2
Cosmetics	0.59	0.59	100.0
Retail Food	0.78	0.57	73.1
Other Consumer	11.34%	9.42%	83.1%
Nonfood Retail	4.72	5.51	116.7
Apparel & Textiles	0.60	0.36	60.0
Photographic & Optical	1.16	0.88	75.9
Motor Vehicles	3.36	1.11	33.0
Non-Auto Durables	0.91	1.20	131.9
Leisure & Luxury	0.59	0.36	61.0
Drugs & Health Care	6.48%	5.83%	90.0%
Drugs	4.62	4.10	88.7
Health Care	1.86	1.73	93.0

South Africa-Free Index Portfolio (June 30, 1986)

	S&P 500	Optimized Index	Relative
Publishing & Media	3.57%	3.83%	107.3%
Publishing	1.73	1.89	109.2
Media	1.84	1.94	105.4
Transport & Travel	4.20%	4.92%	117.1%
Hotels & Restaurants	1.76	1.97	111.9
Air Transport	0.74	1.09	147.3
Railroads	1.32	1.59	120.5
Trucking	0.30	0.18	60.0
Transport by Water	0.08	0.09	112.5
Intermediate Goods	8.17%	7.01%	85.8%
Chemicals	3.59	2.56	71.3
Tire & Rubber	0.26	0.31	119.2
Containers	0.20	0.16	80.0
Misc. Producers Goods	4.12	3.98	96.6
Capital Spending & Defense	16.93%	15.32%	90.5%
Business Machines	9.14	6.35	69.5
Electronics	2.74	3.81	139.1
Construction	1.17	1.36	116.2
Aerospace	3.46	3.63	104.9
Pollution Control	0.42	0.17	40.5
Utilities	13.75%	15.17%	110.3%
Electric	4.71	6.50	138.0
Gas	1.41	1.08	76.6
Telephone	7.63	7.59	99.5
Financial	7.77%	8.40%	108.1%
Banks	2.40	2.68	111.7
Thrift Institutions	0.25	0.11	44.0
Life Insurance	1.13	0.89	78.8
Other Insurance	2.27	3.34	147.1
Misc. Financial	1.72	1.38	80.2
Other	2.39%	1.48%	61.9%
Real Property	0.21	0.21	57.1
Services	1.21	0.43	35.5
Miscellaneous	0.97	0.93	95.9

the enlarged, purged universe. So, for example, the selection of larger capitalization companies within industry groups has modestly relieved the small-stock bias associated with South Africa-free portfolios. More significantly, a seeking of companies with stable earnings patterns has dramatically reduced the otherwise clear bias toward volatile companies. Comparable efforts have also increased the portfolio's weight in companies with foreign exposure from less than two-thirds of the full S&P 500 to a figure that is actually slightly above the whole index. The selection process has brought the beta of this South Africa-free index to exactly 1.00. And a seeking of financially sound companies within industry groups has also allowed the portfolio to cut the high financial leverage evident in the purged universes to a level approaching that of the 500. For all eleven investment characteristics, the optimized South Africa-free index portfolio shows an average deviation of 4.8 percentage points from the S&P 500 compared with an average deviation of 8.6 percentage points for the purged group of 358 stocks.

And as Table 9 shows, this optimized South Africa-free index portfolio is able to match the performance of the S&P 500 quite closely, even though half the capitalization of the 500 is disallowed under the South African exclusion. Over the whole five-and-one-half-year period of this simulation, the index port-

"Month by month, quarter by quarter, year by year, the index portfolio avoids the wide swings in relative performance that are so evident in the simply purged group."

folio averaged about 20 basis points a year ahead of the S&P 500. That is not really very different from the simply purged S&P for the whole period. What is significant is that month by month, quarter by quarter, year by year, the index portfolio avoids the wide swings in relative performance that are so evident in the simply purged group. Of course, this index portfolio, working as it is against a South Africa-free constraint, cannot match the close tracking of a straightforward, unconstrained index portfolio. Nonetheless, as a comparison of Tables 9 and 3 shows, this optimized portfolio has kept performance deviations well down. On a quarterly basis, the simply purged group has missed the full S&P by as much as 256 basis points, while the South Africa-free index holds the worst quarterly deviation to well below 200 basis points. On an average annual basis, the differences are even more telling. The purged group has missed by as much as 523 basis points in a given year, while the South Africa-free index has held that miss to only 232 basis points. On average, then, the absolute annual deviation of the simply purged group amounts to 216 basis points per year, while the South Africa-free index has an average deviation of only 82 basis points per year.

It is this kind of relative stability that recommends this optimized index over any simple exclusion of South Africa-affiliated companies from a stock universe. It is only by this kind of rigorous diversification and rebalancing of a purged universe that a portfolio can avoid the investment biases implicit in divestiture and provide stable and consis-

Table 8 **Comparison of Relative Portfolio**

	Purged S&P 500	Enlarged Universe South Africa-Free	Optimized Index
Investment Characteristics			
Market Capitalization	98.14%	96.16%	98.32%
Liquidity	99.24	93.20	92.44
Growth	104.11	105.41	98.60
Earnings Variation	108.44	114.08	102.82
Foreign Income	64.04	58.25	118.43
Labor Intensity	82.08	81.22	92.34
Beta	103.31	102.83	100.00
Price/Earnings Ratio	98.50	95.71	100.00
Price-to-Book Ratio	93.75	93.75	93.75
Financial Leverage	111.88	111.88	105.09
Yield	101.82	100.00	100.80
Industry Groups			
Metals & Mining	133.8%	124.5%	99.0%
Aluminum	187.2	127.7	170.2
Iron & Steel	170.6	150.0	108.8
Precious Metals	141.2	129.4	23.5
Coal & Uranium	105.7	105.7	86.8
Miscellaneous	88.7	122.6	66.0
Oil	99.1%	102.9%	93.7%
International	35.9	45.1	73.6
Domestic Reserves	121.9	119.6	115.0
Foreign Reserves	134.4	151.0	73.2
Refining & Distribution	153.3	182.2	125.2
Oil Service	150.7	121.0	95.7
Agriculture & Forest Products	116.6%	95.1%	123.1%
Forest Products	174.3	128.6	305.7
Paper	127.3	106.0	146.3
Agriculture, Food	104.5	85.1	91.0
Food, Tobacco & Packaged Goods	104.6%	103.4%	121.3%
Beverages	36.1	34.9	48.8
Liquor	122.2	101.1	128.9
Tobacco	98.0	140.2	180.4
Soaps	123.4	100.0	162.2
Cosmetics	47.5	35.6	100.0
Retail Food	184.6	189.7	73.1
Other Consumer	106.2%	86.7%	83.1%
Nonfood Retail	180.0	138.8	116.7
Apparel & Textiles	123.3	116.7	60.0
Photographic & Optical	14.7	16.4	75.9
Motor Vehicles	24.4	21.1	33.0
Non-Auto Durables	94.5	101.1	131.9
Leisure & Luxury	161.0	128.8	61.0

Characteristics, South Africa-Free (June 30, 1986)

	Purged S&P 500	Enlarged Universe South Africa-Free	Optimized Index
Drugs & Health Care	27.8%	34.9%	90.0%
Drugs	8.2	16.7	88.7
Health Care	76.3	80.1	93.0
Publishing & Media	86.0%	92.4%	107.3%
Publishing	117.3	120.8	109.2
Media	56.5	65.8	105.4
Transportation & Travel	161.0%	143.1%	117.1%
Hotels & Restaurants	145.5	129.6	111.9
Air Transport	141.9	148.7	147.3
Railroads	184.9	125.8	120.5
Trucking	186.7	193.3	60.0
Transportation by Water	187.5	487.5	112.5
Intermediate Goods	53.6%	61.3%	85.8%
Chemicals	47.1	59.6	71.3
Tire & Rubber	26.9	69.2	119.2
Containers	45.0	50.0	80.0
Misc. Producers Goods	61.4	62.9	96.6
Capital Spending & Defense	57.8%	48.4%	90.5%
Business Machines	25.4	23.0	69.5
Electronics	90.2	82.5	139.1
Construction	145.3	121.4	116.2
Aerospace	73.1	55.8	104.9
Pollution Control	183.3	114.3	40.5
Utilities	173.4%	162.6%	110.3%
Electric	187.1	220.6	138.0
Gas	170.9	187.2	76.6
Telephone	165.4	122.3	99.5
Financial	109.8%	166.9%	108.1%
Banks	91.7	234.2	111.7
Thrift Institutions	184.0	196.0	44.0
Life Insurance	148.7	150.4	78.8
Other Insurance	135.7	131.7	147.1
Misc. Financial	64.5	126.2	80.2
Other	97.1%	142.3%	61.9%
Real Property	181.0	228.6	57.1
Services	90.9	166.1	35.5
Miscellaneous	86.6	93.8	95.9

tent returns relative to the S&P 500, which, after all, is the equity benchmark of the entire investment community.

Conclusion

This discussion has made no effort to consider the moral, legal, political or administrative aspects of the divestiture question. These are well discussed elsewhere and really are not the province of an investment advisor (except perhaps in his role as a citizen). Rather, the investment advisor's job is to work within the constraints imposed by the client and inform the client of the likely investment impact of those constraints. From the advisor's perspective, divestiture makes the job more complex than it might be otherwise. But from an investment standpoint, it is no different from coping with an extreme risk aversion on a client's part or the need for a large cash flow, or any number of a host of less morally laden constraints that a client might impose on a portfolio. The important point is that all parties know what to expect, given the constraints.

This essay has shown that the client can in fact expect performance comparable to that of the S&P 500 even with the most severe of South Africa-free constraints. As in the case of any portfolio, except a straight index, relative performance will fluctuate from quarter to quarter. But, as should be clear from this analysis, even over a relatively short horizon of 12 to 18 months, the returns of the 500 are a reasonable standard for a South Africa-free portfolio. And an individual or plan can still expect an ac-

Table 9

Relative Performance of the S&P Index vs. the South Africa-Free Index Fund (December 31, 1980 through June 30, 1986)

	S&P 500			South Africa-Free Index Fund		
	Quarterly Return	Annual Return	Cumulative Return	Quarterly Return	Annual Return	Cumulative Return
1981 1st Qtr	1.4%		1.4%	1.8%		1.8%
2nd Qtr	−2.3%		−1.0%	−1.9%		−0.1%
3rd Qtr	−10.3%		−11.2%	−8.6%		−8.7%
4th Qtr	6.9%	−5.1%	−5.1%	6.5%	−2.8%	−2.8%
1982 1st Qtr	−7.1%		−11.8%	−7.1%		−9.7%
2nd Qtr	−0.5%		−12.2%	1.0%		−8.8%
3rd Qtr	11.4%		−2.2%	11.2%		1.4%
4th Qtr	18.1%	21.7%	15.5%	16.7%	21.8%	18.4%
1983 1st Qtr	10.0%		27.1%	11.1%		31.5%
2nd Qtr	11.0%		41.1%	10.1%		44.8%
3rd Qtr	−0.2%		40.8%	−1.6%		42.4%
4th Qtr	0.3%	22.2%	41.2%	0.9%	21.4%	43.7%
1984 1st Qtr	−2.4%		37.8%	−1.5%		41.5%
2nd Qtr	−2.6%		34.2%	−2.5%		37.9%
3rd Qtr	9.6%		47.2%	8.2%		49.2%
4th Qtr	1.8%	6.1%	49.7%	1.2%	5.1%	51.1%
1985 1st Qtr	9.3%		63.6%	8.9%		64.5%
2nd Qtr	7.3%		75.5%	7.1%		76.2%
3rd Qtr	−4.2%		68.1%	−2.9%		71.0%
4th Qtr	17.1%	31.4%	96.8%	16.1%	31.4%	98.5%
1986 1st Qtr	14.0%		124.3%	13.6%		125.4%
2nd Qtr	5.8%	20.5%*	137.3%	6.1%	20.5%*	139.2%

*Six month return.

tive manager to earn his fee by outperforming the 500, even given the divestiture constraint. The cost is less in performance than in a rigorous application of the principles of diversification.□

As we went to press, several major corporations, including Coca-Cola, General Motors and IBM, announced that they planned to withdraw from doing business in South Africa. The author has added the following postscript to his article:

Since this analysis was completed, several prominent companies have indicated an intention to pull out of South Africa. In a strict sense, their gesture is inadequate, since they will maintain a sales and service presence in that country. Nonetheless, for the sake of a complete picture, we revisited the analysis, including these firms in the South Africa-free subset.

Their inclusion in the permissible group does in fact move that group closer to the character of the whole S&P 500. There is a greater relative presence in autos and business machines than there was before. Even so, the biases remain the same (if a bit less intense). Thus autos, business machines, technology, etc. remain underweighted in the purged group as they were before the recent announcements. Perhaps more importantly, the investment biases remain much as they were, although a bit less extreme. For example, this more recent South Africe-free group has a lower beta than the original set—102.2 vs. 103.3—but it is still high relative to the entire S&P 500. Similarly, this new sample still shows more variable earnings than the whole index, more financial leverage, much less foreign income, and less labor intensity.

Of course, being slightly closer to the index than the old sample was, this group will tend to track the whole S&P 500 more closely than the old sample would be expected to do. But still, without optimized sampling to ameliorate differences, the continued biases suggest a pattern of over- and undershooting similar to that exhibited by the old South Africa-free group.

Milton J. Ezrati is senior vice president of Manufacturers Hanover Investment Corporation, New York, where he is director of research and economist. He has worked as an economist throughout his career, serving in that capacity with Citibank, The Chase Manhattan Bank and Lionel D. Edie & Company (which was absorbed into Manufacturers Hanover Trust Company in 1981). He holds a B.A. from the State University of New York at Buffalo and a Master of Social Science in economics from the University of Birmingham, England.

1986 Directory of Master and Directed Trust Services

The following *Pension World* Directory is a listing of firms indicating that they offer master and/or directed trusts. It is not an exhaustive list, but rather an identification of the firms that responded in full to *Pension World's* questionnaire.

During August 1986, a questionnaire was mailed to 100 U.S. banks and trust companies. Of the responses received, 56 indicated that they offer master and/or directed trusts. This number is smaller than last year's responses (76). A number of last year's respondents indicated that they no longer offer such services; in some cases, two banks combined in the past year and consolidated two master trust operations into one. Our research suggests that banks which have previously made substantial commitments to the master trust business are continuing and even increasing those commitments, while few, if any, banks are starting new master trust operations.

Master Trust continues to be defined in individual ways by the banks and trust companies offering this service. A technical definition, according to several authorities in the corporate trust industry, is a trust in which *multiple* plans of the same company control or share investment experience under *one trust document*. In working terms, however, some of the definitions used for master trust include: 1) an arrangement under one trust agreement that includes multiple money managers, one of which may or may not be the trustee; 2) a pooling of one sponsor's assets, which may include multiple managers and *one* or more plans, under one trust document; or 3) a pooling of directed trusts.

Similarly, several different definitions are given to the term *directed trust*. The general definition is a trust under which the trustee has less than full managerial authority of the plan sponsor's assets. However, the term is often used synonymously with *directed portfolio*, in which a manager has the authority to direct only those investments within the particular portion of assets under his direct control; and it is sometimes associated with *general trust*, in which a separate trust agreement is written for that portion of assets under the manager's control.

Figures gleaned in the following survey are not always comparable, although *Pension World* has taken every precaution to present these data in their most accurate form. All information in the directory was provided by the banks and trust companies listed. *Pension World* appreciates the efforts of those who completed and returned the questionnaires and hopes that each year's directory will continue to be more comprehensive.

AMERICAN NATIONAL BANK & TRUST COMPANY
5th & Minnesota Streets
St. Paul, MN 55101
Contact: William E. Burmeister, assistant vice president, (612) 298-6274

Number of separate master trust clients: 0
Number of directed trust clients: 15
Master trust assets: 0
Directed trust assets: $50 million
Custodial employee benefit assets: $1.2 million
Total employee benefit assets: $127 million
Number of separate portfolios: 20
Average number of accounts per account supervisor: 100 (directed and nondirected)
Average number of portfolios per investment manager contact: 20
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Federated Master Trust
Date short-term instruments credited: First business day of month
Timeliness of reporting package: Mailed on or before 7 business days following month end
Services provided: Performance measurement, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: Paid on scheduled payment date
Fee structure: Based on combination of asset value and individual services

AMERITRUST COMPANY
900 Euclid Avenue
P.O. Box 5937
Cleveland, OH 44101
Contact: Gary W. Queen, senior vice president, (216) 687-4089

Number of separate master trust clients: 38
Number of directed trust clients: 23
Master trust assets: $5.166 billion
Directed trust assets: $530 million
Custodial employee benefit assets: 0
Total employee benefit assets: $10.4 billion
Number of separate portfolios: 117
Average number of accounts per account supervisor: 6
Average number of portfolios per investment manager contact: 12
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: STIF, variable demand notes, T-bills, commercial paper, Eurodollar CDs, CDs & financial reserve fund
Date short-term interest credited: 5th business day
Timeliness of reporting package: 3-5 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, TUCS, AmeriScan (on-line client inquiry), investment management services
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

BANCOKLAHOMA TRUST COMPANY
Bank of Oklahoma Tower-10th Floor
P.O. Box 2300
Tulsa, OK 74192
Contact: Linda W. Parish, vice president & trust officer, (918) 588-6763

Number of separate master trust clients: 4
Number of directed trust clients: 28
Master trust assets: $300 million
Directed trust assets: $377 million
Custodial employee benefit assets: $240 million
Total employee benefit assets: $2.2 billion
Number of separate portfolios: 60
Average number of accounts per account supervisor: 11
Average number of portfolios per investment manager contact: 2
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment (if desired), contractual settlement date, actual delivery date
Fail float credit provided: No
Short-term instruments used: Certificates of deposit, Treasury bills, high-grade commercial paper, and various short-term money market funds
Date short-term interest credited: Compounded daily/credit monthly
Timeliness of reporting package: Settlement date reporting is available to the client by the fifth business day. Trade date reporting is available by the 25th calendar day. A portfolio review reflecting current pricing is available on any business day of the month
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, special equity (growth) investment strategy, hedged equity investment strategy, managed GIC portfolios
Policy for crediting dividends and interest: Posted on payable date in clearinghouse funds for corporate issues. Posted on payable date in Fed funds on most government or government-backed issues. Mortgage-related government-backed issues post principal and income on payable date + 1, in clearinghouse funds. Purchase and sale transactions are posted on contractual settlement date in either Fed funds or clearinghouse funds depending on the nature of the security. Funds are available to the client if the form is received by the bank. Fed funds are available on the same business day. Clearinghouse funds are available on the first business day following posting
Fee structure: Based on combination of asset value and individual services

BANK IV WICHITA
Fourth Financial Center
P.O. Box 4
Wichita, KS 67201-0004
Contact: Roger A. Ramseyer, securities management marketing representative, (316) 261-4555

Number of separate master trust clients: 1
Number of directed trust clients: 18
Master trust assets: $78 million
Directed trust assets: $218 million
Custodial employee benefit assets: 0
Total employee benefit assets: $299 million
Number of separate portfolios: 35
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: 9
Accounting system utilized: Contractual settlement date
Fail float credit provided: Not reported
Short-term instruments used: Goldman Sachs institutional liquid assets prime obligations portfolio
Date short-term interest credited: First of each month
Timeliness of reporting package: All accounting and investment reviews mailed within 30 days following end of cycle
Services provided: Performance measurement, portfolio analysis, portfolio review, benefit disbursement
Policy for crediting dividends and interest: On payable date + 1; direct participant with Depository Trust Co.
Fee structure: Based on individual services performed

BANK OF AMERICA NT & SA
555 California Street
San Francisco, CA 94104
Contact: John P. Sheehy, senior vice president, (415) 622-9568

Number of separate master trust clients: 40
Number of directed trust clients: 420
Master trust assets: $17.6 billion
Directed trust assets: $11.8 billion
Custodial employee benefit assets: N/A
Total employee benefit assets: $29.7 billion (including $300 million in bank-managed funds)
Number of separate portfolios: 2700
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: It can be
Short-term instruments used: STIF
Date short-term interest credited: First day of following month
Timeliness of reporting package: 5-10 business days for monthly and quarterly reports; 20-30 business days for annual reports
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody
Policy for crediting dividends and interest: On payable date, credited to STIF
Fee structure: Based on combination of asset value and individual services

THE BANK OF NEW YORK
48 Wall Street
New York, NY 10015
Contact: Robert Darbee, vice president, (212) 530-1354

Number of separate master trust clients: 80
Number of directed trust clients: Not reported
Master trust assets: $26.3 billion
Directed trust assets: Not reported
Custodial employee benefit assets: $18.1 billion
Total employee benefit assets: $44.4 billion
Number of separate portfolios: Not reported
Average number of accounts per account supervisor: 5-10
Average number of portfolios per investment manager contact: Not reported
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: STIF, domestic and foreign master notes
Date short-term interest credited: Daily

Timeliness of reporting package: 2-5 days
Services provided: Performance measurement, portfolio analysis, portfolio review, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, beneficial interest reporting system, global custody, FIRST (on-line reporting system), DIAL-IN, options/futures administration, benefit payment system
Policy for crediting dividends and interest: In Fed funds on payable date
Fee structure: Based on combination of asset value and individual services

BANK ONE, DAYTON, NA
Kettering Tower
Dayton, OH 45401
Contact: Donald G. Middendorf, vice president, (513) 449-8659

Number of separate master trust clients: 7
Number of directed trust clients: 23
Master trust assets: $375 million
Directed trust assets: $360 million
Custodial employee benefit assets: $50 million
Total employee benefit assets: $550 million
Number of separate portfolios: 70
Average number of accounts per account supervisor: 20
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes, master trust only
Short-term instruments used: Commercial paper, T-bills, STIF
Date short-term interest credited: Month end
Timeliness of reporting package: Interim 3-5 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, index fund, zero benefit disbursement for Master Trust, auto daily sweep of funds in excess of $1.00
Policy for crediting dividends and interest: On payable date; all funds collected, governments, agencies, STIF clearinghouse funds, etc.
Fee structure: Based on combination of asset value and individual services

BANKERS TRUST COMPANY
280 Park Avenue, 8 West
New York, NY 10017
Contact: Carter P. Reynolds, vice president, (212) 850-2089

Number of separate master trust clients: 123
Number of directed trust clients: 100
Master trust assets: $77.5 billion
Directed trust assets: $1.4 billion
Custodial employee benefit assets: $20.0 billion
Total employee benefit assets: $140.5 billion
Number of separate portfolios: 1,223
Average number of accounts per account supervisor: 12
Average number of portfolios per investment manager contact: 80
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment; contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Master notes and commercial paper of the major finance companies, CDs of major U.S. money-center banks, Euro-dollar CDs and time deposits issued by these same banks, CDs issued by major European and Japaneses banks from their New York agencies, repurchase agreements collateralized by U.S. Treasury or federal agency obligations, repurchase agreements collateralized by the Canadian or foreign issuers mentioned above, and banker's acceptances
Date short-term interest credited: First business day of each month
Timeliness of reporting package: Monthly/quarterly transaction statements available within three business days of period end. Monthly/quarterly accountings available 7-10 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, cash management, global custody, remote on-line access, consulting, active and passive investment services, cash projection, customized reporting, advisor services, options and futures processing, tax lot accounting, performance attribution
Policy for crediting dividends and interest: On payable date in Federal funds
Fee structure: Based on conbination of asset value and individual services

BISHOP TRUST COMPANY, LTD.
P.O. Box 2390
Honolulu, HI 96804
Contact: Daniel P. Zaehring, vice president & manager, employee benefits, (808) 523-2275

Number of separate master trust clients: 51
Number of directed trust clients: 263
Master trust assets: $115 million
Directed trust assets: $255 million
Custodial employee benefit assets: $255 million
Total employee benefit assets: $320 million
Number of separate portfolios: 261
Average number of accounts per account supervisor: 15 master - 48 directed
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Registered money market fund, T-Bills, CDs, commercial paper
Date short-term interest credited: accrued daily, paid on second working day of following month
Timeliness of reporting package: 3 working days transaction; 10 working days asset valuation and projections
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, plan administrator consulting and design
Policy for crediting dividends and interest: Pay date + 1 with good funds
Fee structure: Based on combination of asset value and individual services

BOSTON SAFE DEPOSIT AND TRUST COMPANY
One Boston Place
Boston, MA 02106
Contact: Norman R. Lubin, vice president, (617) 722-7314

Number of separate master trust clients: 40
Number of directed trust clients: 238
Master trust assets: $29.9 billion
Directed trust assets: $805 million
Custodial employee benefit assets: $11.4 billion
Total employee benefit assets: $12.1 billion
Number of separate portfolios: 807
Average number of accounts per account supervisor: 4
Average number of portfolios per investment manager contact: 11
Accounting system utilized: Trade date (full accrual), also maintain cash basis accounting system
Fail float credit provided: Yes, if bank is responsible for the fail. Cash is transferred on settlement date for all purchase trades
Short-term instruments used: STIF, reserve deposit account, active reserves, enhanced cash reserves, The Boston Company Cash Management Fund
Date short-term interest credited: Accrued daily and credited on the third business day of the following month
Timeliness of reporting package: 5 business days following period-end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, full accrual trade date accounting and recording, on-line access via P.C. (Master Workstation), global custody, options and futures processing, portfolio insurance, 401(k) capabilities, asset allocation, consulting services
Policy for crediting dividends and interest: Payable date for Fed funds, next business day following payable date for clearinghouse funds
Fee structure: Based on combination of asset value and individual services

CALIFORNIA FIRST BANK
530 B Street
San Diego, CA 92112
Contact: Piet Westerbeek III, vice president-business development, (619) 230-4504

Number of separate master trust clients: 0
Number of directed trust clients: 787
Master trust assets: 0
Directed trust assets: $666.4 million
Custodial employee benefit assets: $624.3 million
Total employee benefit assets: $1.5 billion
Number of separate portfolios: 1,474
Average number of accounts per account supervisor: 210
Average number of portfolios per investment manager contact: 20
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Daily automatic cash sweep
Date short-term interest credited: Monthly
Timeliness of reporting package: 10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, international equity investment fund, real estate equity fund
Policy for crediting dividends and interest: On payable date in cash for next day's investment
Fee structure: Based on combination of asset value and individual services

Continued on page 60

CENTERRE TRUST COMPANY OF ST. LOUIS
510 Locust Street
St. Louis, MO 63101
Contact: Richard W. Hibbs, vice president and director of employee benefit marketing, (314) 436-9265

Number of separate master trust clients: 8
Number of directed trust clients: N/A
Master trust assets: $1.4 billion
Directed trust assets: N/A
Custodial employee benefit assets: $2.7 billion
Total employee benefit assets: $4.0 billion
Number of separate portfolios: 87
Average number of accounts per account supervisor: 5
Average number of portfolios per investment manager contact: 26
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: In-house STIF
Date short-term interest credited: Second day following month end
Timeliness of reporting package: 5-7 working days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund
Policy for crediting dividends and interest: On payable date; computer system credit for immediate investment
Fee structure: Based on combination of asset value and individual services

THE CHASE MANHATTAN BANK, N.A.
Global Securities Information and Pension Trust Group
1211 Avenue of the Americas, 30th floor
New York, NY 10036
Contact: John A. Sweeney, vice president, (212) 730-3008

Number of separate master trust clients: 97
Number of directed trust clients: 210
Master trust assets: $103 billion
Directed trust assets: $17 billion
Custodial employee benefit assets: $18 billion
Total employee benefit assets: $138 billion
Number of separate portfolios: 1250
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 35
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Domestic & International STIF, Master Notes, Money Market
Date short-term interest credited: Month-end
Timeliness of reporting package: On-line statements daily; monthly/quarterly statements 7 business days after period end; annual statement 30 to 45 business days after year end
Services provided: Performance measurement, portfolio analysis, portfolio review, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, on-line accounting and reporting system, safekeeping, custody accounting, cash management, futures/options accounting, security lending
Policy for crediting dividends and interest: On payable date; interest in Fed funds, dividends in clearing house funds
Fee structure: Based on combination of asset value and individual services

CITIBANK, N.A.
153 East 53rd Street, 25th Floor, Zone 5
New York, NY 10043
Contact: Gregory J. di Pretoro, vice president, (212) 559-1523

Number of separate master trust clients: 41
Number of directed trust clients: 85
Master trust assets: $9.6 billion
Directed trust assets: $11.5 billion
Custodial employee benefit assets: $44.5 billion
Total employee benefit assets: $65.6 billion
Number of separate portfolios: 586
Average number of accounts per account supervisor: 7
Average number of portfolios per investment manager contact: 29
Accounting system utilized: Trade date (full accrual), contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Citibank's commingled employee benefit trust liquid reserve fund, short term investment fund, demand notes, custom short term investment fund, individual money market instruments
Date short-term interest credited: Mid-month and end of month
Timeliness of reporting package: 5-7 business days following receipt of all information
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, dividend reinvestment program, Citicorp portfolio analyst, on-line flexible reporting and graphics, global custody
Policy for crediting dividends and interest: On payable date for Fed Funds; payable date + 1 for clearinghouse funds; in good funds immediately available for reinvestment
Fee structure: Based on individual services performed

THE CITIZENS AND SOUTHERN NATIONAL BANK
33 North Avenue, N.E.
P.O. Box 4114
Atlanta, GA 30302
Contact: Edgar R. Smith, vice president-sales, (404) 897-3083

Number of separate master trust clients: 30
Number of directed trust clients: 105
Master trust assets: $900 million
Directed trust assets: $600 million
Custodial employee benefit assets: $7.5 billion
Total employee benefit assets: $9 billion
Number of separate portfolios: 460
Average number of accounts per account supervisor: 125
Average number of portfolios per investment manager contact: 12
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: Money market fund, Federated, VANS, cash management fund
Date short-term interest credited: On payable date
Timeliness of reporting package: Ten working days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, international fund
Policy for crediting dividends and interest: On payable date; immediate credit to account
Fee structure: Based on combination of asset value and individual services

CITY NATIONAL BANK OF MIAMI
Trust Department
P.O. Box 025611
Miami, FL 33102-5611
Contact: David Buznego, vice president & trust officer, (305) 577-7248

Number of separate master trust clients: 4
Number of directed trust clients: 2
Master trust assets: $14.9 million
Directed trust assets: $14.7 million
Custodial employee benefit assets: $14.5 million
Total employee benefit assets: $14.9 million
Number of separate portfolios: 4
Average number of accounts per account supervisor: 15
Average number of portfolios per investment manager contact: 15
Accounting system utilized: Actual delivery date
Fail float credit provided: No
Short-term instruments used: No
Date short-term interest credited: On settlement
Timeliness of reporting package: Within 30 days after closing date
Services provided: Participant recordkeeping, ERISA disclosure assistance, benefit disbursement, market inventory fund
Policy for crediting dividends and interest: When due; credits automatically posted on due date
Fee structure: Based on combination of asset value and individual services

CONNECTICUT BANK & TRUST COMPANY
One Constitution Plaza
Hartford, CT 06115
Contact: Paul W. Stadler, vice president, (203) 244-5385

Number of separate master trust clients: 13
Number of directed trust clients: 70
Master trust assets: $446 million
Directed trust assets: $793 million
Custodial employee benefit assets: $18 million
Total employee benefit assets: $1.7 billion
Number of separate portfolios: 105
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 21
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: Commingled short term, repurchase agreements, variable interest rate notes
Date short-term interest credited: Monthly
Timeliness of reporting package: 2-20 business days, depending upon nature of report
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, South Africa free portfolios available
Policy for crediting dividends and interest: On payable date; in Fed funds for Fed funds, clearinghouse for clearinghouse funds
Fee structure: Based on combination of asset value and individual services

THE CONNECTICUT NATIONAL BANK
777 Main Street
Hartford, CT 06115
Contact: Stuart I. Repp, senior vice president, (203) 728-4699

Number of separate master trust clients: 15

Number of directed trust clients: 79
Master trust assets: $1.2 billion
Directed trust assets: $8.3 million
Custodial employee benefit assets: Included in master and directed trust asset values
Total employee benefit assets: $3.5 billion
Number of separate portfolios: 125
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 12
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Own STIFs and VANs
Date short-term interest credited: Last day of month
Timeliness of reporting package: Depending on package 2 to 7 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

CONTINENTAL BANK
Trust and Investment Services
30 North LaSalle Street
Chicago, IL 60697
Contact: Christopher S. Ross, second vice president, (312) 828-3560

Number of separate master trust clients: 41
Number of directed trust clients: 128
Master trust assets: $14.9 million
Directed trust assets: $650 million
Custodial employee benefit assets: N/A
Total employee benefit assets: $15.5 billion
Number of separate portfolios: N/A
Average number of accounts per account supervisor: 12
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: Continental Bank's STIF or others as directed by client or manager
Date short-term interest credited: Second business day
Timeliness of reporting package: Cash statements, second business day; asset list, sixth business day
Services provided: Performance measurement, portfolio analysis portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody, on-line access to data, flexible reporting, electronic mail system
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

FIDELITY BANK, N.A.
Broad & Walnut Streets
Philadelphia, PA 19109
Contact: Eileen Fadden, senior vice president, (215) 496-4195

Number of separate master trust clients: 3
Number of directed trust clients: 24
Master trust assets: $604.1 million
Directed trust assets: $239.3 million
Custodial employee benefit assets: $244.5 million
Total employee benefit assets: $2.1 billion
Number of separate portfolios: 110
Average number of accounts per account supervisor: 7
Average number of portfolios per investment manager contact: 4
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: No
Short-term instruments used: In-house short term investment fund or Federated Fund B
Date short-term interest credited: Approximately 10th of month
Timeliness of reporting package: Within 120 days of plan year end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On pay date
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK, LTD.
707 Wilshire Blvd.
Los Angeles, CA 90017
Contact: John Mason, vice president-institutional sales & marketing, (213) 614-3133

Number of separate master trust clients: 20
Number of directed trust clients: 254
Master trust assets: $3 billion
Directed trust assets: $14.3 billion
Custodial employee benefit assets: $1 billion
Total employee benefit assets: $18.3 billion
Number of separate portfolios: 1200
Average number of accounts per account supervisor: 45
Average number of portfolios per investment manager contact: 30-40
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: Short-term investment fund
Date short-term interest credited: First week following end of month
Timeliness of reporting package: No later than 10 working days following month end
Services provided: Performance measurement, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund
Policy for crediting dividends and interest: From date payable
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK OF OREGON, N.A.
P.O. Box 2971
Portland, OR 97208
Contact: Rick Meigs, vice president, (503) 225-2484

Number of separate master trust clients: 23
Number of directed trust clients: 34
Master trust assets: $4.2 billion
Directed trust assets: $302 million
Custodial employee benefit assets: N/A
Total employee benefit assets: $5.4 billion
Number of separate portfolios: 139
Average number of accounts per account supervisor: 58
Average number of portfolios per investment manager contact: 1.4
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: No
Short-term instruments used: A variety of high yield institutions-only Money Market Funds
Date short-term interest credited: Last day of month
Timeliness of reporting package: Within five business days
Services provided: Performance measurement, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, on-line access, cash management, global custody, multicurrency accounting, options & futures processing, customized reporting
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK OF UTAH, N.A.
170 South Main Street
P.O. Box 30169
Salt Lake City, UT 84142
Contact: Rod R. Cushing, vice president, (801) 484-8945

Number of separate master trust clients: 31
Number of directed trust clients: 47
Master trust assets: $156.6 million
Directed trust assets: $231.4 million
Custodial employee benefit assets: $110.4 million
Total employee benefit assets: $390.3 million
Number of separate portfolios: 96
Average number of accounts per account supervisor: 48
Average number of portfolios per investment manager contact: 45
Accounting system utilized: Contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Various short term investment funds, commercial paper and Treasury bills
Date short-term interest credited: First business day of month
Timeliness of reporting package: 5-10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, plan design, IRS plan qualification, computer on-line data access, full income and expense accrual accounting, automated daily sweep of cash to STIF investment
Policy for crediting dividends and interest: On payable date through internal suspense
Fee structure: Based on combination of asset value and individual services

FIRST INTERSTATE BANK OF WASHINGTON, N.A.
Trust Division
P.O. Box 21927
Seattle, WA 98111
Contact: Lawrence T. Divers, vice president & trust officer, (206) 343-8346

Number of separate master trust clients: 0
Number of directed trust clients: 250
Master trust assets: 0
Directed trust assets: $1.4 billion
Custodial employee benefit assets: $857.4 million
Total employee benefit assets: $1.4 billion
Number of separate portfolios: N/A
Average number of accounts per account supervisor: N/A

Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: In-house short-term investment fund, federated master trust, federated intermediated
Date short-term interest credited: N/A
Timeliness of reporting package: 10 working days after month end
Services provided: Performance measurement, participant recordkeeping, securities lending, cash management and lockbox services
Policy for crediting dividends and interest: On payable date
Fee structure: Based on combination of asset value and individual services

FIRST NATIONAL BANK & TRUST COMPANY OF TULSA
P.O. Box One
Tulsa, Ok 74193
Contact: Richard A. Moser, vice president & trust officer, (918) 586-5661

Number of separate master trust clients: 6
Number of directed trust clients: 32
Master trust assets: $96.4 million
Directed trust assets: $168.3 million
Custodial employee benefit assets: $300 million
Total employee benefit assets: $564.7 million
Number of separate portfolios: 38
Average number of accounts per account supervisor: 9
Average number of portfolios per investment manager contact: 7
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments utilized: Short term inv. company, Dreyfus Money Market, Federated U.S. Treasury obligations, ILA Govt., Shearson Temp. Fund
Date short-term interest credited: First & second business day following month end
Timeliness of reporting package: By 15th business day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

FIRST PENNSYLVANIA BANK N.A.
Packard Building, Third Floor
Philadelphia, PA 19101
Contact: James F. McHale, senior vice president, (215) 786-7946

Number of separate master trust clients: 17
Number of directed trust clients: 63
Master trust assets: $3.6 billion
Directed trust assets: $850 million
Custodial employee benefit assets: $21.5 billion
Total employee benefit assets: $26 billion
Number of separate portfolios: 150
Average number of accounts per account supervisor: 20
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: Government Secured Master Repo Account
Date short-term interest credited: monthly
Timeliness of reporting package: 10 working days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody
Policy for crediting dividends and interest: On payable date in clearinghouse funds on equities, corporates, and municipals. Fed funds on government issues
Fee structure: Based on combination of asset value and individual services

FIRST SECURITY BANK OF UTAH, N.A.
79 South Main Street
Salt Lake City, UT 84111
Contact: Patricia A. Richards, vice president, (801) 350-5562

Number of separate master trust clients: 5
Number of directed trust clients: 6
Master trust assets: $236.6 million
Directed trust assets: $16.7 million
Custodial employee benefit assets: $13.3 million
Total employee benefit assets: $493.1 million
Number of separate portfolios: 35
Average number of accounts per account supervisor: 17
Average number of portfolios per investment manager contact: 2.7
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: Federated funds, Shearson Temp. Fund, others at direction of manager
Date short-term interest credited: Second business day
Timeliness of reporting package: 6 to 8 business days
Services provided: Participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund
Policy for crediting dividends and interest: On payable date, immediately available funds
Fee structure: Based on combination of asset value and individual services

FIRST TRUST CO., INC.
180 East Fifth Street
Saint Paul, MN 55101
Contact: William D. Bensman, vice president, (612) 223-7422

Number of separate master trust clients: 26
Number of directed trust clients: 62
Master trust assets: $4.1 billion
Directed trust assets: $630 million
Custodial employee benefit assets: $2.5 billion
Total employee benefit assets: $7.2 billion
Number of separate portfolios: 93
Average number of accounts per account supervisor: 4
Average number of portfolios per investment manager contact: n/a
Accounting system utilized: Trade date (full income accrual)
Fail float credit provided: Yes
Short-term instruments used: First Trust's short term investment fund, Saint Paul Money Fund, Shearson Temp. Fund and Federated Master Trust
Date short-term interest credited: First of the month
Timeliness of reporting package: Complete accountings ten business days after the end of the period
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, super STIF, index option overwriting
Policy for crediting dividends and interest: On payable date; dividends and interest are credited on payable date. Fed funds are invested same day and clearinghouse funds are invested payable date + 1
Fee structure: Based on combination of asset value and individual services

FIRST WACHOVIA
P.O. Box 3099
Winston-Salem, NC 27150
Contact: Jane B. Fisher, vice president, (919) 770-6348

Number of separate master trust clients: 53
Number of directed trust clients: 136
Master trust assets: $23.4 billion
Directed trust assets: $1.6 billion
Custodial employee benefit assets: $3.8 billion
Total employee benefit assets: $30.1 billion
Number of separate portfolios: 500
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: 17
Accounting system utilized: Contractual settlement date with pending adjustment, contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: STIF Funds, demand notes, repos, individual managed short term funds and treasury notes
Date short-term interest credited: First
Timeliness of reporting package: 10 business days or less
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, global custody, options and futures processing, cash management, asset allocation consulting, Wilshire Trust Universe Comparison Service, PAYSOP administration, 401(k) consulting
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

FIRST WISCONSIN TRUST COMPANY
777 E. Wisconsin Avenue
P.O. Box 2054
Milwaukee, WI 53201
Contact: Anthony M. Rood, first vice president, (414) 765-4444

Number of separate master trust clients: 33
Number of directed trust clients: 232
Master trust assets: $2.1 billion
Directed trust assets: $1.2 billion
Custodial employee benefit assets: $1.5 billion
Total employee benefit assets: $1.6 billion
Number of separate portfolios: 850
Average number of accounts per account supervisor: 15
Average number of portfolios per investment manager contact: 40
Accounting system utilized: Trade date with full income accrual
Fail float credit provided: Yes
Short-term instruments used: Short-term income fund and variable demand notes
Date short-term interest credited: Fifth business day of the month

Timeliness of reporting package: Financial transactions on the second business day of the month; list of assets indicating both cost and market value on the third business day of the month
Services provided: Performance measurement, portfolio analysis, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, bond immunization, bond dedication, equity and fixed income indexing, real estate and technology funds
Policy for crediting dividends and interest: On payment date in good funds
Fee structure: Based on combination of asset value and individual services

FLORIDA NATIONAL BANK
225 Water Street
Jacksonville, FL 32201-0689
Contact: Robert E. Mitchell, vice president, (904) 359-5209

Number of separate master trust clients: 3
Number of directed trust clients: 5
Master trust assets: $50 million
Directed trust assets: $40 million
Custodial employee benefit assets: $600 million
Total employee benefit assets: $780 million
Number of separate portfolios: 13 (master trust and directed only)
Average number of accounts per account supervisor: 75 (average of all employee benefit accounts)
Average number of portfolios per investment manager contact: 30 (average of all employee benefit accounts)
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Federated Government Fund, U.S. Treasury Fund, Shearson Temp. Fund, Shearson Fed Fund, Florida National Bank-special deposit, asset investment-short term investment company fund, asset investment-Treasury fund
Date short-term interest credited: First business day
Timeliness of reporting package: 10 days after accounting period
Services provided: Portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, stable value investing, GIC contract
Policy for crediting dividends and interest: Payable date or day after
Fee structure: Based on combination of asset value and individual services

HT INVESTORS, INC.
321 South Main Street
Providence, RI 02903
Contact: J. Richard Schroder, vice president-marketing director, (401) 276-6100

Number of separate master trust clients: 10
Number of directed trust clients: 19
Master trust assets: $476.3 million
Directed trust assets: $1.1 billion
Custodial employee benefit assets: $52.1 million
Total employee benefit assets: $2.0 billion
Number of separate portfolios: 97
Average number of accounts per account supervisor: N/A
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Actual delivery date with pending adjustment
Fail float credit provided: No

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Short-term instruments used: Shearson Lehman Brothers Inc. Temp. Fund
Date short-term interest credited: Accrued daily/credited on first business day of month
Timeliness of reporting package: Cash statements-second business day, all others 5th-7th business day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, options and futures processing, 401(k) capabilities, plan accounting, fund accounting
Policy for crediting dividends and interest: Payable date for federal funds; next business day following payable date for clearinghouse funds
Fee structure: Based on combination of asset value and individual services

HARRIS TRUST AND SAVINGS BANK
111 West Monroe Street
Chicago, IL 60638
Contact: Walter J. Kowalczyk, vice president, (312) 461-7625

Number of separate master trust clients: 58
Number of directed trust clients: 217
Master trust assets: $30 billion
Directed trust assets: $7.5 billion
Custodial employee benefit assets: $8 billion
Total employee benefit assets: $45.5 billion
Number of separate portfolios: 700
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: 70
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: STIF, commercial paper, certificates of deposit (domestic and Euro), bankers acceptances, U.S. government and agency issues, repurchase agreements, demand notes
Date short-term interest credited: Third or fourth business day of the following month
Timeliness of reporting package: Monthly transactions and assets, 2 to 7 business days; monthly and annual audited financial summaries with ERISA reports and plan accounting, 12 to 15 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, Trust Universe Comparison Service, options/futures accounting, global custody, on-line accounting and analytics with download capability, automated daily sweep of cash, automated cash management
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

THE INTERNATIONAL TRUST COMPANY
Royal Bank Plaza, North Tower, Box 75
Toronto, Ontario, Canada
Contact: William A. Pascoe, vice president-pension services, (416) 865-0515

Number of separate master trust clients: 19
Number of directed trust clients: 31
Master trust assets: $2.8 billion
Directed trust assets: $1.9 billion
Custodial employee benefit assets: $553.5 million
Total employee benefit assets: $1.8 billion
Number of separate portfolios: 218
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: No
Short-term instruments used: Short-term investment funds
Date short-term interest credited: Last day of month
Timeliness of reporting package: 8-10th business day after reporting period
Services provided: Performance measurement, portfolio analysis, participant recordkeeping, securities lending, benefit disbursement, index fund, short term investment funds, pooled fund investments, global custody
Policy for crediting dividends and interest: On payable date through credit to client's account
Fee structure: Based on combination of asset value and individual services, based on complexity of services required

IRVING TRUST COMPANY
One Wall Street
New York, NY 10015
Contact: Gary L. Davenport, vice president, (212) 635-1700

Number of separate master trust clients: 31
Number of directed trust clients: 130
Master trust assets: $13.3 billion
Directed trust assets: $3.2 billion
Custodial employee benefit assets: $31 billion
Total employee benefit assets: $47.5 billion
Number of separate portfolios: 177
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 10
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: Irving Trust STIF, master notes, money market funds
Date short-term interest credited: 1st day of following month
Timeliness of reporting package: 5th-7th business day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, investment management, global custody, pension consulting services, immunized and dedicated bond portfolios, on-line portfolio statusing, cash management
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

LASALLE NATIONAL BANK
135 S. LaSalle St.
Chicago, IL 60690
Contact: James F. Sullivan, senior vice president, (312) 443-2497

Number of separate master trust clients: 10
Number of directed trust clients: 50
Master trust assets: $300 million
Directed trust assets: $150 million
Custodial employee benefit assets: N/A
Total employee benefit assets: $1.2 billion (excluding pure custody)
Number of separate portfolios: 4 per master trust, 10 maximum
Average number of accounts per account supervisor: 40
Average number of portfolios per investment manager contact: 2
Accounting system utilized: Contractual settlement date with pending adjustment, actual delivery date (varies by account)
Fail float credit provided: Optional
Short-term investment used: STIF
Date short-term interest credited: Second or third workday
Timeliness of reporting package: Varies by client
Services provided: Performance measurement, portfolio analysis, participant recordkeeping, benefit disbursement, six equity and four fixed income investment funds, prototype 401(k) plan
Policy for crediting dividends and interest: Credited on payable date
Fee structure: Based on base fee plus asset value only; based on individual services performed for benefit checks (pension) and participant recordkeeping

MANUFACTURERS NATIONAL BANK OF DETROIT
100 Renaissance Center, 13th Floor
Detroit, MI 48080
Contact: Robert R. Schoonbeck, senior vice president and senior trust officer, (313) 222-4471

Number of separate master trust clients: 64
Number of directed trust clients: 527
Master trust assets: $13.6 billion
Directed trust assets: $15.5 billion
Custodial employee benefit assets: $11.4 billion
Total employee benefit assets: $25.7 billion
Number of separate portfolios: 75
Average number of accounts per account supervisor: 60
Average number of portfolios per investment manager contact: 70
Accounting system utilized: Contractual settlement date—pending trade date accrual schedule, accruing all transactions as of trade date and incorporating accrued transactions in the account value
Fail float credit provided: Yes
Short-term instruments used: Manufacturers Bank Short Term Investment Fund, mainly, although seven additional funds are offered
Date short-term interest credited: Fifth business day of each month
Timeliness of reporting package: Two weeks after the close of the period
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund
Policy for crediting dividends and interest: Automatically advanced on payable date
Fee structure: Based on combination of asset value and individual services

MANUFACTURERS HANOVER TRUST
530 Fifth Avenue, 4th Floor
New York, NY 10036
Contact: Renee San Marco, vice president, (212) 819-1580

Number of separate master trust clients: 71
Number of directed trust clients: 237
Master trust assets: $11.7 billion
Directed trust assets: $5.9 billion

Custodial employee benefit assets: $4.1 billion
Total employee benefit assets: $18.4 billion
Number of separate portfolios: N/A
Average number of accounts per account supervisor: N/A
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment, contractual settlement date, actual delivery date
Fail float credit provided: Yes
Short-term instruments used: STIF, demand notes, T-bills or other requirements of manager
Date short-term interest credited: Accrues daily; credited monthly
Timeliness of reporting package: 5-7 days audited
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, asset allocation, asset liability planning
Policy for crediting dividends and interest: On payable date to account in good funds and available on that date for reinvestment
Fee structure: Based on combination of asset value and individual services

MARINE MIDLAND BANK, N.A.
250 Park Avenue
New York, NY 10177
Contact: Moira L. Patterson, assistant vice president, (212) 503-2724

Number of separate master trust clients: 19
Number of directed trust clients: 100
Master trust assets: $1.8 billion
Directed trust assets: $600 million
Custodial employee benefit assets: $800 million
Total employee benefit assets: $3.2 billion
Number of separate portfolios: 450
Average number of accounts per account supervisor: 15-20
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: T-bills, master notes, commercial paper, STIF and other money market funds
Date short-term interest credited: End of month
Timeliness of reporting package: 7 business days
Services provided: Performance measurement, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, on-line access through FAIMIS system
Policy for crediting dividends and interest: On payable date; automatic
Fee structure: Based on combination of asset value and individual services

MARSHALL & ILSLEY TRUST COMPANY
770 North Water Street
Milwaukee, WI 53202
Contact: Morry L. Birnbaum, vice president, (414) 287-7187

Number of separate master trust clients: 37
Number of directed trust clients: 600
Master trust assets: $3.5 billion
Directed trust assets: $900 million
Custodial employee benefit assets: $200 million
Total employee benefit assets: $2.7 billion
Number of separate portfolios: 600
Average number of accounts per account supervisor: 100
Average number of portfolios per investment manager contact: 15
Accounting system utilized : Contractual settlement date with pending adjustment
Fail float credit provided: Negotiated
Short-term instruments used: STIF with ACM; T-bills
Date short-term interest credited: Daily
Timeliness of reporting package: 5-7 business days
Services provided: Performance measurement, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, on-line access, investment management
Policy for crediting dividends and interest: On payable date in actual funds
Fee structure: Based on combination of asset value and individual services

MARYLAND NATIONAL BANK
2 N. Charles Street
P.O. Box 995
Baltimore, MD 21203
Contact: Gordon R. Boardway, senior trust officer and manager, employee benefits sales, (301) 244-1443

Number of separate master trust clients: 3
Number of directed trust clients: 80
Master trust assets: $76 million
Directed trust assets: $673 million
Custodial employee benefit assets: $26 million
Total employee benefit assets: $775 million
Number of separate portfolios: N/A
Average number of accounts per account supervisor: N/A
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Cash reserve fund, CDs, commercial paper, Treasuries, etc.
Date short-term interest credited: Daily
Timeliness of reporting package: Within 10 days for most reporting
Services provided: Performance measurement, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, four collective investment funds, GIC Search, cash management
Policy for crediting dividends and interest: On due date or delivery date; credited to cash
Fee structure:Based on conbination of asset value and individual services

MELLON BANK
One Mellon Bank Center
Pittsburgh, PA 15258
Contact: Gary A. Rothman, vice president, (412) 234-1336

Number of separate master trust clients: 88
Number of directed trust clients: 57
Master trust assets: $86.6 billion
Directed trust assets: $2.5 billion
Custodial employee benefit assets: $5.4 billion (also included in master trust asset value)
Total employee benefit assets: $86.1 billion
Number of separate portfolios: 1,000
Average number of accounts per account supervisor: 8
Average number of portfolios per investment manager contact: 50
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: Commingled, short-term funds utilizing A-1 and P-1 investments
Date short-term interest credited: Earned daily/credited weekly
Timeliness of reporting package: Monthly, quarterly and annually with monthly statements available third business day following month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, global custody, performance analytics, on-line access, options & futures, customized reports
Policy for crediting dividends and interest: On payable date; clearinghouse funds for corporate bonds and equity; Fed funds for governments
Fee structure: Based on conbination of asset value and individual services

MONTREAL TRUST COMPANY OF CANADA
15 King Street West
Toronto, Ontario
Contact: Kenneth E. Neely, assistant vice president, corporate services, (416) 860-5848

Number of separate master trust clients: 77
Number of directed trust clients: 279
Master trust assets: $5.2 billion
Directed trust assets: $1.2 billion
Custodial employee benefit assets: $13.6 billion
Total employee benefit assets: $14.8 billion
Number of separate portfolios: 1805
Average number of accounts per account supervisor: 40
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Contractual settlement date
Fail float credit provided: No
Short-term instruments used: T-Plus (STIF)
Date short-term interest credited: Monthly (accrued daily)
Timeliness of reporting package: 5 to 10 working days following month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, index fund, global custody, specialized index funds
Policy for crediting dividends and interest: On payable date, credited automatically to account
Fee structure: Based on conbination of asset value and individual services

NATIONAL BANK OF DETROIT
611 Woodward Avenue
Detroit, MI 48226
Contact: Larry D. Rankens, trust officer, (313) 225-2660

Number of separate master trust clients: 61
Number of directed trust clients: 38
Master trust assets: $19.9 billion
Directed trust assets: $1.7 billion
Custodial employee benefit assets: $10.9 billion
Total employee benefit assets: $21.6 billion
Number of separate portfolios: 320
Average number of accounts per account supervisor: 15-20
Average number of portfolios per investment manager contact: 3
Accounting system utilized: Trade date (full accrual), contractual settlement date with pending adjustment
Fail float credit provided: Yes. Purchase fail float

is fully invested in NBD's STIF until actual settlement date
Short-term instruments used: NBD's master trust STIF
Date short-term interest credited: Second business day after end of month
Timeliness of reporting package: Monthly cash statements and inventories, 5 to 7 business days; daily account ledgers, the day after the reporting period; annual/interim reports and plan valuations, 20 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, data monitor (on-line access), cash management, global custody, custodian services
Policy for crediting dividends and interest: On payable date in federal funds unless unusual payment patterns such as foreign securities, GNMA, etc.
Fee structure: Based on combination of asset value and individual services

NATIONAL TRUST COMPANY
21 King Street East
Toronto, Ontario M5C 1B3
Contact: Julie K. Spergel, marketing consultant, (416) 361-3611

Number of separate master trust clients: 35
Number of directed trust clients: 135
Master trust assets: $3.2 billion
Directed trust assets: $3.5 billion
Custodial employee benefit assets: $7.0 billion
Total employee benefit assets: $11.2 billion
Number of separate portfolios: 85
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: N/A—95% of trades processed through Canadian Depository for Securities (book-based system)
Short-term instruments used: STIF
Date short-term interest credited: Daily
Timeliness of reporting package: 10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, index fund, global fund
Policy for crediting dividends and interest: On due date automatically by bond and dividend registers
Fee structure: Based on combination of asset value and individual services

THE NORTHERN TRUST COMPANY
50 South LaSalle Street
Chicago, IL 60675
Contact: Thomas W. Kimen, Jr., senior vice president, (312) 630-6000

Number of separate master trust clients: 177
Number of directed trust clients: 38
Master trust assets: $89.1 billion
Directed trust assets: $2.2 billion
Custodial employee benefit assets: $4.1 billion
Total employee benefit assets: $95.4 billion
Number of separate portfolios: 2,400
Average number of accounts per account supervisor: 7
Average number of portfolios per investment manager contact: 24
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: Yes
Short-term instruments used: STIF for both 401(a) qualified and non-qualified plans
Date short-term interest credited: Third business day after month end
Timeliness of reporting package: 3 to 5 business days after period end; available on-line 24 hours a day
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, global custody, multi-currency accounting, asset allocation control, dedicated & immunized bond funds, portfolio restructuring, portfolio insurance, EAFE index fund, electronic delivery, options and futures, real estate, consulting, cash management, collective fund investment management
Policy for crediting dividends and interest: On payable date. Regularly scheduled dividend and interest payments are credited on payable date in good funds regardless of whether The Northern Trust has received the funds
Fee structure: Based on combination of asset value and individual services

REPUBLICBANK DALLAS
P.O. Box 241
Dallas, TX 75221
Contact: David J. Pittman, senior vice president, (214) 922-6506

Number of separate master trust clients: 240
Number of directed trust clients: Included with master trust clients
Master trust assets: $19.1 billion
Directed trust assets: Included with master trust assets
Custodial employee benefit assets: $10.7 billion
Total employee benefit assets: $26.5 billion
Number of separate portfolios: 193
Average number of accounts per account supervisor: 10
Average number of portfolios per investment manager contact: 7
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Commingled STIF, individually managed STIF, aggressive STIF and others
Date short-term interest credited: First and 15th
Timeliness of reporting package: On-line, second business day; hard copy, fifth business day
Services provided: On-line performance measurement, portfolio analysis, portfolio review, on-line participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index funds, market inventory fund, global custody, portfolio insurance, daily pricing, futures & options trading, individually managed insured CDs, GIC wholesale/managed, control disbursement, 401(k) and on-line access
Policy for crediting dividends and interest: On payable date in good funds
Fee structure: Based on combination of asset value and individual services

RICHFIELD BANK & TRUST CO.
6625 Lyndale Ave. So.
Richfield, MN 55423
Contact: Jill M. Edelstein, assistant vice president, trust employee benefits, (612) 861-8321

Number of separate master trust clients: 0
Number of directed trust clients: 800
Master trust assets: 0
Directed trust assets: $150 million
Custodial employee benefit assets: $36 million
Total employee benefit assets: $180 million
Number of separate portfolios: 900
Average number of accounts per account supervisor: 200
Average number of portfolios per investment manager contact: 450
Accounting system utilized: Contractual settlement date
Fail float credit provided: N/A
Short-term instruments used: Money market funds
Date short-term interest credited: First day of month
Timeliness of reporting package: Within 30 days of year end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: On date received

ROYAL TRUST
P.O. Box 7500, Station A
Toronto, Ontario M5W 1P9
Contact: Lyn Statten, director, client service, (416)867-2420

Number of separate master trust clients: 68
Number of directed trust clients: 305
Master trust assets: $13.2 billion
Directed trust assets: $13.5 billion
Custodial employee benefit assets: $14.3 billion
Total employee benefit assets: $18.1 billion
Number of separate portfolios: 1,044
Average number of accounts per account representative: 34
Average number of portfolios per investment manager contact: N/A
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: All
Date short-term interest credited: On valuation date, monthly
Timeliness of reporting package: 10 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement, global custody network on-line access, uploading & downloading of data
Policy for crediting dividends and interest: Credited to account on due date
Fee structure: Based on combination of asset value and individual services

SAN DIEGO TRUST & SAVINGS BANK
530 Broadway
San Diego, CA 92101-5209
Contact: David R. Holst, vice president, (619) 238-2166

Number of separate master trust clients: N/A
Number of directed trust clients: 1,312
Master trust assets: N/A
Directed trust assets: $657 million
Custodial employee benefit assets: $13 million
Total employee benefit assets: $670 million
Number of separate portfolios: 1,791
Average number of accounts per account supervisor: 220
Average number of portfolios per investment manager contact: 300
Accounting system utilized: Trade date (full accrual), contractual settlement date

Fail float credit provided: No
Short-term instruments used: Five money market sweep accounts
Date short-term interest credited: Month end
Timeliness of reporting package: Sixty days following receipt of participant data
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: Paid on payable date
Fee structure: Based on combination of asset value and individual services

STATE STREET BANK AND TRUST COMPANY
P.O. Box 1713
Boston, MA 02105
Contact: J.D. Nelson, senior vice president, (617) 786-6492

Number of separate master trust clients: 194
Number of directed trust clients: Included with master trust clients
Master trust assets: $44.8 billion
Directed trust assets: Included with master trust assets
Custodial employee benefit assets: $65.4 billion
Total employee benefit assets: $110.3 billion
Number of separate portfolios: 1,693
Average number of accounts per account supervisor: 5
Average number of portfolios per investment manager contact: 4
Accounting system utilized: Trade date (full accrual)
Fail float credit provided: Yes
Short-term instruments used: STIF, Government STIF, Maturity Plus STIF, Stock Performance Index Futures Fund (SPIFF, SPIFF Plus and others), Synthetic STIF, Institutional Liquid Assets, The Merrill Lynch Fund and the Common Fund
Date short-term interest credited: Second business day after month end
Timeliness of reporting package: 5-7 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund, global custody network with multicurrency accounting, plan accounting, pool accounting, 401(k) services, on-line client access, performance measurement and analytics, client report formatting capabilities, daily pricing
Policy for crediting dividends and interest: As received
Fee structure: Based on asset value, transaction volume and individual services performed

TEXAS COMMERCE BANK
P.O. Box 2558
Houston, TX 77252-8035
Contact: Willard B. Wagner III, vice president and trust officer, (713) 236-4497

Number of separate master trust clients: 16
Number of directed trust clients: 17
Master trust assets: $1.4 billion
Directed trust assets: $393 million
Custodial employee benefit assets: $1.4 billion
Total employee benefit assets: $5.1 billion
Number of separate portfolios: 100
Average number of accounts per account supervisor: 25
Average number of portfolios per investment manager contact: 3
Accounting system utilized: Actual delivery date
Fail float credit provided: No
Short-term instruments used: Master notes, repos, commercial paper in commingled funds
Date short-term interest credited: Month end
Timeliness of reporting package: 7 business days after month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, benefit disbursement
Policy for crediting dividends and interest: Credited to account on payable date + 1
Fee structure: Based on combination of asset value and individual services

TRUST COMPANY BANK
25 Park Place
Atlanta, GA 30303
Contact: James E. Arnett, group vice president, (404) 588-7329

Number of separate master trust clients: 20
Number of directed trust clients: 35
Master trust assets: $1.1 billion
Directed trust assets: $800 million
Custodial employee benefit assets: $550 million
Total employee benefit assets: $2.4 billion
Number of separate portfolios: 300
Average number of accounts per account supervisor: 38
Average number of portfolios per investment manager contact: 15-18
Accounting system utilized: Trade date (full accrual), contractual settlement date
Fail float credit provided: No
Short-term instruments used: Yes
Date short-term interest credited: First business day of each month
Timeliness of reporting package: Chronological statements generally mailed within 3 business days; categorized statements, within 15 business days
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, securities lending, ERISA disclosure assistance, benefit disbursement
Policy for crediting dividends and interest: Advanced to accounts on payable date
Fee structure: Based on combination of asset value and individual services

UNITED MISSOURI BANK OF KANSAS CITY, N.A.
10th and Grand
P.O. Box 226
Kansas City, MO 64141
Contact: Robert E. Reiter, executive vice president, (816) 556-7474

Number of separate master trust clients: 33
Number of directed trust clients: 342
Master trust assets: $875 million
Directed trust assets: $955 million
Custodial employee benefit assets: $720 million
Total employee benefit assets: $1.4 billion
Number of separate portfolios: 83
Average number of accounts per account supervisor: 25
Average number of portfolios per investment manager contact: 5
Accounting system utilized: Contractual settlement date with pending adjustment
Fail float credit provided: No
Short-term instruments used: Short-Term Money Market Fund and UMB Money Market Fund are primary. Other secondary instruments also used
Date short-term interest credited: 8-14 days after mentioned
Timeliness of reporting package: 2-21 days, dependent on assets held
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, prototype and pattern plans
Policy for crediting dividends and interest: On payable date in cash or in kind
Fee structure: Based on combination of asset value and individual services

U.S. NATIONAL BANK OF OREGON
P.O. Box 3168
Portland, OR 97208
Contact: Marianne Nelson, business development officer, (503) 225-6900

Number of separate master trust clients: 13
Number of directed trust clients: 51
Master trust assets: $20.9 million
Directed trust assets: $231.4 million
Custodial employee benefit assets: $117.6 million
Total employee benefit assets: $728.9 million
Number of separate portfolios: 53
Average number of accounts per account supervisor: 63
Average number of portfolios per investment manager contact: 3
Accounting system utilized: Contractual settlement date
Fail float credit provided: Yes
Short-term instruments used: Qualivest Money Market Fund, Federated Money Market Fund, Ford Motor Master Notes, G.E. Master Notes, G.M. Master Notes, Merrill Lynch Repo, Merrill Lynch Master Notes, Institutional liquid assets
Date short-term interest credited: Pay date
Timeliness of reporting package: Within 10 business days of month end
Services provided: Performance measurement, portfolio analysis, portfolio review, participant recordkeeping, ERISA disclosure assistance, benefit disbursement, trustee services, investment management, employee meetings, prototype defined contribution plans, flex plan consulting
Policy for crediting dividends and interest: On pay date by automatic book entry through Depository Trust Company direct to account
Fee structure: Based on combination of asset value and individual services

UNITED STATES TRUST COMPANY OF NEW YORK
45 Wall Street
New York, NY 10005
Contact: Robert Pagano, vice president, (212) 806-4500

Number of separate master trust clients: 36
Number of directed trust clients: 75
Master trust assets: $9 billion
Directed trust assets: $5.5 billion
Custodial employee benefit assets: $3 billion
Total employee benefit assets: $17.5 billion
Number of separate portfolios: 557
Average number of accounts per account supervisor: 93
Average number of portfolios per investment manager contact: 70
Accounting system utilized: Trade date (full accrual), actual delivery date
Fail float credit provided: Yes

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Master Trust Directory

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Short-term instruments used: Pooled funds and demand notes
Date short-term interest credited: Third business day of month
Timeliness of reporting package: 5-15 days after month end
Services provided: Performance measurement, portfolio analysis, securities lending, ERISA disclosure assistance, benefit disbursement, index fund
Policy for crediting dividends and interest: On payable date in Fed funds
Fee structure: Based on combination of asset value and individual services

WELLS FARGO BANK
475 Sansome St., 6th Floor
San Francisco, CA
Contact: Bruce Simon, vice president, (415) 396-3867

Number of separate master trust clients: 3
Number of directed trust clients: 723
Master trust assets: $1.5 billion
Directed trust assets: $5.7 billion
Custodial employee benefit assets: $300 million
Total employee benefit assets: $7.5 billion
Number of separate portfolios: 20
Average number of accounts per account supervisor: 100
Average number of portfolios per investment manager contact: 90
Accounting system utilized: Trade date (full accrual) to be installed second quarter 1987, contractual settlement date with pending adjustment, contractual settlement date, five days following trade date
Fail float credit provided: No
Short-term instruments used: U.S. Government securities, U.S. government agency securities, bank obligations, short-term corporate debt instruments and repurchase agreements
Date short-term interest credited: Last day of the month
Timeliness of reporting package: 10th-15th business day (up to 45 days for annual reports)
Services provided: Performance measurement, portfolio analysis, portfolio review, securities lending, ERISA disclosure assistance, benefit disbursement, index fund, market inventory fund
Policy for crediting dividends and interest: On payable date in advance funds
Fee structure: Based on combination of asset value and individual services

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